

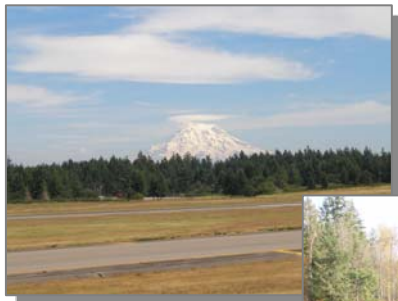
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**DRAFT**

**ENVIRONMENTAL ASSESSMENT**

**MILITARY HOUSING PRIVATIZATION INITIATIVE**

**McCHORD AIR FORCE BASE, WASHINGTON**



Prepared for:

**62 CES/CEV, McChord AFB**

**28 August 2008**

**DRAFT FINDING OF NO SIGNIFICANT IMPACT**

**ENVIRONMENTAL ASSESSMENT**

**MILITARY HOUSING HOUSING PRIVATIZATION INITIATIVE**

**AT M<sup>C</sup>CHORD AIR FORCE BASE, WASHINGTON**

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**Introduction**

The U.S. Air Force (USAF) operates and maintains approximately 104,000 family housing units at its installations throughout the United States. More than 38 percent of all units do not meet current modern standards and require major improvement or replacement. The lack of adequate military family housing forces many military members and their families to live in housing in need of repair, renovation or replacement, or to live off-Base where the cost and quality of housing vary considerably. Congress enacted the Military Housing Privatization Initiative as part of the National Defense Authorization Act for Fiscal Year 1996 to create alternative authorities for improvement and construction of military family housing.

Consistent with the USAF Housing Privatization Program, McChord Air Force Base (AFB) proposes to convey its housing units, grant leases of land and convey land, and transfer responsibility for providing housing and ancillary supporting facilities to a private developer or Project Owner. The Air Force is proposing to privatize military housing at McChord AFB and integrate this housing with the residential community on the adjacent U.S. Army Fort Lewis Military Reservation in Pierce County, Washington. An Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act (NEPA) and the Environmental Impact Analysis Process (32 Code of Federal Regulations [CFR] Part 989). The EA is incorporated by reference into this Finding of No Significant Impact (FONSI).

**Purpose of and Need for the Proposed Action**

Based on findings of the Fort Lewis - McChord AFB Joint Housing Market Analysis completed in November 2007, there is a projected requirement for 608 family housing units on McChord AFB. This represents a housing surplus of 370 older housing units on McChord AFB which will be demolished as part of this action. With the exception of 90 units constructed in 1998, the housing inventory on McChord AFB is older than 40 years and requires extensive renovation. The desired end state for McChord AFB is to provide 608 modern housing units for military occupancy. To meet Air Force quality of life and floor space requirements, aging housing on McChord AFB must be upgraded to meet current life safety codes and to provide a comfortable and appealing living environment comparable to the off-base community. The purpose of the Proposed Action is to transfer responsibility for housing on McChord AFB to a Project Owner. The action is needed to provide affordable, quality housing and community amenities to military members and their families through renovation and replacement of existing housing to meet current USAF standards.

**Description of the Proposed Action and Alternatives**

**Proposed Action.** The Air Force is proposing to privatize military housing on McChord AFB and operate this housing with the Fort Lewis residential community. The Proposed Action would result in demolition, renovation and construction of replacement housing and community amenities. Existing housing in seven housing areas would be privatized: Carter Lake, Carter Lake (short-term), Cascade Village, Heartwood, Olympic Grove, The Bricks and Command Circle. Two parcels of undeveloped land on the Base would be leased: Parcel 39 which contains water infrastructure (wells, well protection zones, wellhouses and water towers); and, Parcel 40 (Westcott Hills) which is a 25-acre undeveloped, forested natural area serving as a passive recreation area and Watchable Wildlife Area. An off-Base sewage lift station, and a storm water drainage system easement would also be conveyed to a Project Owner as part of the privatization. Five wetlands within the housing areas and their wetland protection buffer zones would be restricted from development. The proposed housing privatization would occur over an 8-year period.

One housing area on McChord AFB, The Bricks, includes six buildings (30 housing units) and eight outlying buildings (garage/storage support buildings for the housing) which are Contributing Structures to the McChord Field Historic District. Title to the 30 housing units and leasehold interest in the land would be conveyed to a Project Owner for eight years under the terms and conditions of a preservation covenant which will restrict the removal or disturbance of historical structures or features. These structures would be conveyed back to the Government after eight years. The Air Force will satisfy its responsibilities under Section 106 of the National Historic Preservation Act regarding The Bricks through consultation with the State Historic Preservation Office (SHPO) and the NEPA process applied to produce this EA and FONSI, as provided for in 36 CFR 800.8(c).

**No Action Alternative.** Under the No Action Alternative, the Air Force would not implement the Proposed Action but would continue to provide for on-Base housing needs of its personnel at McChord AFB through use of traditional military maintenance and construction procedures. McChord AFB would continue to obtain funding for housing through the Congressional authorization and appropriations process. Based on historical trends, it is assumed that the Congressional funding for housing would not change and that the housing maintenance backlog would continue to increase. Any major changes to existing housing or construction of new housing would require that appropriate NEPA analyses be completed before implementing such actions.

### **Summary of Anticipated Environmental Impacts Associated with the Proposed Action**

The Proposed Action would result in short-term direct minor adverse effects from construction and demolition activities in the noise environment, air quality, water resources, environmental management, hazardous substances, transportation and solid wastes, and environmental justice:

- **Noise.** Short-term, localized increases in noise levels would result from the use of demolition and construction equipment. After units are constructed, the noise environment would be similar to baseline conditions.
- **Air Quality.** Fugitive dust from ground disturbing activities and combustive emissions from renovation equipment would be generated during demolition and renovation. Air pollutant emissions would be short-term and localized, and would not result in any adverse effects on overall ambient air quality. Demolition would include removal of asbestos and lead-based paint, and this activity would be conducted in accordance with applicable environmental requirements for the safe removal and disposal of these materials. Project emissions during construction would be less than USEPA threshold limits.
- **Water Resources.** The Proposed Action would not result in any impacts to surface or ground water. Housing areas would be designed and constructed in accordance with best management practices for storm water management and erosion control.
- **Environmental Management.** The Proposed Action would not be expected to result in interference with ongoing remediation or investigation activities at McChord AFB. Construction of housing areas would not result in creation of any contaminated sites nor would it impede the progress of cleanup at existing contaminated sites. Significant impacts from hazardous materials would not be anticipated. Demolition of the existing housing would result in the generation of hazardous waste, particularly building materials with asbestos and lead-based paint. The privatization project manager would be responsible for disposal of demolition wastes generated by privatization activities. Demolition wastes will be managed in accordance with the McChord AFB Asbestos Management and Operating Plan and the McChord AFB Lead-Based Paint Management Plan.
- **Hazardous Substances.** The volume of chemicals procured for housing construction would not be expected to impact the ability of the Base to meet its reduction goals. The generation of hazardous waste would increase slightly during the demolition and construction. Increases would be temporary and would not impact the Base's attainment of the hazardous waste reduction goals. The demolition contractor will be responsible for asbestos removal before demolition. All friable asbestos will be removed by a licensed asbestos abatement contractor using approved abatement methods. The Air Force would ensure that the presence of any lead-based paint is identified before initiating demolition. Removal of lead-based paint shall comply with 29 CFR

1910. Soil contamination from household herbicide and pesticide use may be present in housing areas although these sites were not used for past agricultural purposes. Radon levels above action levels would not be expected in the housing areas.

- **Transportation and Solid Wastes.** The Proposed Action would result in no net increase in personnel or housing on the Base. Privatized housing would include improvements to roadways within the housing areas. Solid waste generated from construction and demolition activities would be disposed of in an approved landfill with sufficient capacity to accommodate future disposal needs.
- **Environmental Justice.** The Proposed Action would not result in any disproportionately adverse effects on minority or low-income populations. No significant impacts to air quality, traffic or noise would be expected.

With incorporation of best management practices to avoid or minimize the potential for adverse effects, short-term impacts of the Proposed Action would be localized to the immediate area of construction and would subside following completion of construction in that area.

The Proposed Action would result in long-term direct minor adverse effects on the land use, geology and soils, biological resources, cultural resources, visual resources, and environmental justice:

- **Land Use.** The Proposed Action would result in permanent conversion of 12.5 acres of heavily-forested natural area designated for passive recreation and conservation into a new housing area. In order to avoid conflict with the established land use as passive recreation and horseback riding trails, the Air Force may relocate recreational uses to alternate locations.
- **Geology and Soils.** The Proposed Action would include construction of housing on Westcott Hills which is situated on the relatively impermeable Vashon Till geologic formation. The housing area on this site would be designed and constructed in accordance with recommendations of a site-specific geotechnical investigation.
- **Biological Resources.** The main housing area is located in developed areas that do not provide habitat for listed species. The Proposed Action would include construction of 32 homes on an undeveloped, natural forested area which is a loss of 12.5 acres of Forest Management Stand No. 25. Conversion of this parcel would result in loss of 12.5 of the 100-acre Westcott Hills Watchable Wildlife Area. Although no federally listed species would be expected on either of the undeveloped parcels, surveys for western gray squirrel, white-tip aster and Torrey's peavine have not been conducted (these three are federal Species of Concern). Wetlands in the project area would continue to be managed by the Air Force by prohibiting development in the designated buffer zone for each wetland.
- **Cultural Resources.** The Proposed Action would result in privatization of The Bricks (Historic Housing Row complex) which contains Contributing Structures to the McChord Field Historic District. The Air Force would execute a preservation covenant to restrict loss of historic resources. The proposed Westcott Hills housing site is not expected to be archaeologically sensitive. Ground-disturbance during demolition and construction of housing may result in the inadvertent discovery of subsurface cultural materials. Damage to, or loss of any cultural artifacts would be considered a significant impact. To avoid this impact, the Army and the Air Force will ensure that the BMP for inadvertent discovery of cultural material is included in project design and construction. The Proposed Action would not be located in any area that is considered a traditional cultural resource area. Impacts to traditional cultural resources would not be expected as a result of the Proposed Action
- **Visual Resources.** The Proposed Action would not result in any effects on scenic vistas or substantial damage to scenic resources. The proposed construction of 32 homes on Westcott Hills would result in a change in the visual appearance of the immediate area, and may result in emanation of artificial light, although the site would be shielded by trees.

With incorporation of best management practices to avoid or minimize the potential for adverse effects, long-term impacts of the Proposed Action would be avoided or minimized.

### **Public Review and Interagency Coordination**

Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) was initiated on August 29, 2008, for a 15-day comment period. A Notice of Availability for the EA was published on August 29, 2008 in the *Tacoma News-Tribune*, initiating a 15-day review. The EA was made available in the Lakewood, Tillicum and Parkland-Spanaway branches of the Pierce County public library, the Base Library on McChord AFB, and online on the McChord AFB public website. Comments received will be taken into consideration by the Air Force prior to approval of this FONSI.

### **Finding of No Significant Impact**

Based on the EA conducted in accordance with the National Environmental Policy Act, the Council on Environmental Quality regulations, and implementing regulations set forth in 32 CFR 989 (Environmental Impact Analysis Process), it is concluded that, with incorporation of best management practices for specific resources as described in the EA, the environmental effects of the proposed privatization of housing on McChord AFB, Washington, are not significant, and that preparation of an environmental impact statement is not warranted. For these reasons, a finding of no significant impact is made. An EA of the Proposed Action, dated August 2008, is hereby incorporated by reference, and is on file at Headquarters, 62d Airlift Wing, c/o 62 AW/PA, 100 Col Joe Jackson Blvd, Suite 1077, McChord AFB, WA 98438-1109.

SIGNED:

\_\_\_\_\_  
JEFFREY L. STEPHENSON, Colonel, USAF  
Commander, 62d Airlift Wing

Date: \_\_\_\_\_

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## **ACRONYMS AND ABBREVIATIONS**

µg/m <sup>3</sup>	micrograms per cubic meter
62 AW	62d Airlift Wing
62 CES/CEV	62d Civil Engineering Squadron/Environmental Flight
ACQWEB	Website of the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics
A.D.	anno Domini
AFB	Air Force Base
AFI	Air Force Instruction
AHPA	Archeological and Historic Preservation Act
AICUZ	Air Installation Compatible Use Zone
AIRFA	American Indian Religious Freedom Act
ALGT	American Lake Garden Tract
AMC	Air Mobility Command
a.m.	ante meridiem
APCA	Air Pollution Control Authority
APE	Area of Potential Effect
APZ	Accident Potential Zone
AQCR	Air Quality Control Region
ARPA	Archeological Resources Protection Act
AT/FP	Anti-Terrorism/Force Protection
AW	Airlift Wing
Bldg	building
BMP	best management practice
BNSF	Burlington Northern Santa Fe
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERL	Construction Engineering Research Laboratory
CES/CEV	Civil Engineering Squadron/Environmental Flight
CFR	Code of Federal Regulations
CO	carbon monoxide
CRMP	Cultural Resources Management Plan
CZ	Clear Zone
dB	decibel
dBA	A-weighted decibel
DCE	dichloroethene

DoD	Department of Defense
DoDD	Department of Defense Directive
E.O.	Executive Order
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
ERP	Environmental Restoration Program
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
ft	feet
FY	Fiscal year
HCM	Highway Capacity Manual
HMMP	Hazardous Materials Management Plan
HQ AMC	Headquarters, Air Mobility Command
ID	Installation Development
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
INRMP	Integrated Natural Resources Management Plan
IRP	Installation Restoration Program
JLUS	Joint Land Use Study
lb	pound(s)
LBP	lead-based paint
LOS	Level of Service
LRI	Land Recovery, Inc.
mg/m <sup>3</sup>	milligrams per cubic meter
MILCON	Military Construction
MOU	Memorandum of Understanding
N <sub>2</sub> O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NFRAP	No Further Response Action Planned
NHPA	National Historic Preservation Act
NLR	Noise Level Reduction
NO	nitric oxide
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NPL	National Priority List

NRHP	National Register of Historic Places
O <sub>3</sub>	ozone
Pb	lead
PL	Public Law
p.m.	post meridiem
PM <sub>10</sub>	particles with aerodynamic diameter less than or equal to a nominal 10 micrometers
PM <sub>2.5</sub>	particles with aerodynamic diameter less than or equal to a nominal 2.5 micrometers
POV	Privately Owned Vehicle
ppm	parts per million
PSCAA	Puget Sound Clean Air Agency
PVC	Plastic Vinyl Coating
QAE	Quality Assurance Evaluator
Q-D	Quantity - Distance
RCRA	Resource Conservation and Recovery Act of 1972
RCO	Residential Community Office
ROI	Region of Influence
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO <sub>2</sub>	sulfur dioxide
SO <sub>x</sub>	sulfur oxides
SW	southwest
SWPPP	Storm Water Pollution Prevention Plan
TCE	trichloroethene
tpy	tons per year
TSP	total suspended particulates
USAF	United States Air Force
USC	United States Code
USDOE	United States Department of Education
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
V/C	Volume-to-Capacity ratio
VOC	volatile organic compounds
WDOE	Washington Department of Ecology

## CHAPTER 1

### PURPOSE AND NEED FOR THE PROPOSED ACTION

The Air Force is proposing to privatize military housing at McChord Air Force Base (AFB) and operate this housing with the residential community on the adjacent U.S. Army Fort Lewis Military Reservation in Pierce County, Washington (Figure 1-1). The Proposed Action would result in demolition, renovation and construction of replacement housing and community facilities. Additional undeveloped land on the Base, an off-Base sewage lift station, and a storm water drainage system easement would also be conveyed to a Project Owner as part of the privatization.



Source: modified from 1994 MAGELLAN Geographix™ Santa Barbara, CA

Figure 1-1. Project Location Map

#### 1.1 Need for Proposed Action

The U.S. Department of Defense (DoD) faces two significant housing problems. First, the condition of DoD-owned housing is poor; and, second, there is a shortage of affordable, quality private housing available to service members and their families (ACQWEB, 2001). The Air Force operates and maintains approximately 104,000 family housing units at its installations throughout the United States. More than 38 percent of all units do not meet current modern standards and require major improvement or replacement. The lack of adequate military family housing forces many military members and their families to live in housing in need of repair, renovation or replacement, or to live off-Base where the cost and quality of housing vary considerably. Congress enacted the Military Housing Privatization Initiative as part of the National Defense Authorization Act for Fiscal Year 1996 to create alternative authorities for improvement and construction of military family housing. Using the traditional military construction

(MILCON) approach, it would cost taxpayers nearly \$16 billion and take 20 years to upgrade housing to current Air Force standards.

Based on findings of the Fort Lewis - McChord AFB Joint Housing Market Analysis completed in November 2007, there is a projected requirement for 608 family housing units on McChord AFB. This represents a housing surplus of 370 older housing units on McChord AFB which would be demolished as part of this action. With the exception of 90 units constructed in 1998, the housing inventory on McChord AFB is older than 40 years and requires extensive renovation. The desired end state for McChord AFB is to provide 608 modern housing units for military occupancy. To meet Air Force quality of life and floor space requirements, aging housing on McChord AFB must be upgraded to meet current life safety codes and to provide a comfortable and appealing living environment comparable to the off-base community. The purpose of the Proposed Action is to transfer responsibility for housing on McChord AFB to a Project Owner. The action is needed to provide affordable, quality housing and community amenities to military members and their families through renovation and replacement of existing housing to meet current Air Force standards.

## **1.2 Objectives**

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The DoD objective is to upgrade all required, inadequate housing by Fiscal Year (FY) 2010. To accomplish this objective, the Air Force and Army have launched an aggressive program to revitalize all housing units under their control through a combination of traditional MILCON funding and a privatization initiative. The National Defense Authorization Act for Fiscal Year 1996, Public Law 104-106 110 Stat. 186 Section 2801, includes a series of authorities which allow the DoD to work with the private sector to build and renovate military housing. The DoD's goals are to:

- Obtain private capital to leverage government dollars;
- Make efficient use of limited resources; and,
- Use a variety of private sector approaches to build and renovate military housing faster and at a lower cost to American taxpayers.

DoD services have also been provided the authority to permit privatization of housing where privatization is economically feasible. Therefore, the Proposed Action for accomplishing the objective of upgrading housing all involve a privatization scenario, including necessary renovation and construction by a private contractor over a shorter period of time than would be accomplished by the Air Force and Army using traditional MILCON approaches.

The housing privatization program's objective is to improve the quality of housing and life for active duty military personnel and their families, while reducing the cost to the DoD for providing housing. These objectives are achieved through utilizing one or more of the MHPI legislative tools to leverage private sector capital and property development as well as management expertise. The primary legislative tools include:

- Guarantees: DoD can provide loan guarantees to private sector lenders or offer limited guarantees against defaults caused by base closure, force reductions, and major deployments;
- Direct Loans: DoD can provide construction and permanent loans to builders of military housing;
- Conveyance/Leasing: DoD can convey or lease land or facilities to developers;
- Differential Lease Payments: DoD can pay the difference between market rents and housing allowances paid to service members and their families; and,
- Investments: DoD can invest directly in military housing projects in the form of limited real estate partnerships, stock or bond purchase, or other debt or equity instruments (AFCEE, 2007).

In November 2007, the Deputy Assistant Secretary of the Air Force (Installations) and the Deputy Assistant Secretary of the Army, Privatization and Partnerships (Installations and Environment) executed a Memorandum of Understanding for the combined military housing privatization initiative at Fort Lewis and McChord AFB. This agreement established the mutual intention of both services to plan and implement a combined housing privatization initiative whereby an operating agreement for:

- conveyance of buildings and infrastructure to the Army; and,

- lease of Air Force-retained land to a Project Owner.

### **1.3 Scope of the Environmental Review**

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Consistent with the Council on Environmental Quality and U.S. Air Force regulations, an Environmental Assessment (EA) will be prepared with a focus on those resources that may be affected by implementation of the Proposed Action at McChord AFB. The EA will describe and address the potential environmental impacts of the activities associated with privatizing, renovating, demolishing, and constructing housing facilities in order to meet requirements. The EA also addresses the potential environmental impacts of the No Action Alternative. An AF Form 813 for the current action is included in Appendix A.

The study area for the EA includes McChord AFB and the region of influence (ROI). The ROI determines the geographical area to be addressed as the potentially affected environment. Although the housing area boundaries may constitute the ROI limit for some resources, potential effects associated with certain issues (e.g., transportation and air quality) transcend these limits. For purposes of this analysis, the ROI is generally limited to McChord AFB. The ROI for air quality issues will include Air Quality Control Region (AQCR) 229 (Puget Sound Intrastate AQCR).

### **1.4 Resources Not Evaluated in the Environmental Assessment**

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Initial analyses indicated that proposed activities would not result in either short- or long-term impacts to air installation compatible use zone (AICUZ), safety and occupational health, socioeconomic resources, floodplains, infrastructure and utilities, or public services. The reasons for not addressing these subjects are discussed in the following paragraphs:

- **Air Installation Compatible Use Zone.** The purpose of the AICUZ program is to promote compatible land development in areas subject to aircraft noise and accident potential. The Proposed Action would not involve any airfield operations, nor would it change existing and planned aircraft activities at McChord AFB.
- **Safety and Occupational Health.** Safety concerns are typically associated with exposure to asbestos, radiation and chemicals as well as explosives safety quantity-distances. For the proposed housing privatization, issues associated with exposure to construction materials such as asbestos and lead-based paint are addressed in the Environmental Management subchapter. The explosives safety quantity-distances established at McChord AFB are addressed in the Land Use subchapter. No other safety issues are anticipated for the proposed housing privatization. Occupational health associated with construction activities is managed by requiring compliance with applicable safety regulations.
- **Socioeconomic Resources.** The Proposed Action would be located entirely on Government property and would not result in any change to off-Base population, employment or economic conditions. The proposed housing privatization plan has been developed to address housing needs in consideration of the availability of off-Base housing. The proposed privatization has been evaluated in the Fort Lewis-McChord AFB Joint Housing Market Analysis completed in November 2007. For this reason, socioeconomics is not evaluated in this EA.
- **Floodplains.** The housing to be privatized, the off-Base sewage lift station, storm drainage easement, and the 24-acre parcel of undeveloped land are not within the 100- or 500-year floodplain.
- **Infrastructure and Utilities.** The Proposed Action would result in an overall decrease in the consumption of water and power (electricity and natural gas), and generation of wastewater and domestic solid waste associated with the privatization of housing. For these reasons, the evaluation of infrastructure and utilities in this EA is limited to transportation systems and solid waste (including recycling).
- **Public Services.** Because the Proposed Action would not result in a gradual decrease in the on-Base population at McChord AFB, no effects on police, fire and medical services would be expected. Privatization would result in continuation of fire protection and law enforcement services being provided by the Government for housing within the boundaries of McChord AFB and Fort Lewis. No impacts to community services would be anticipated.

## 1.5 Applicable Regulatory Requirements and Required Coordination

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### 1.5.1 Applicable Regulatory Review

The EA will be prepared in accordance with the CEQ regulations, Title 40 of the Code of Federal Regulations (CFR) §§1500-1508, which implements the requirements of the National Environmental Policy Act (NEPA) of 1969, 42 U.S.C. §4321, *et seq.*, Air Force Instruction (AFI) 32-7061, *The Environmental Impact Analysis Process*, as promulgated in 32 CFR Part 989 (revised as of July 1, 2001). AFI 32-7061 addresses implementation of NEPA and directs Air Force officials to consider environmental consequences as part of the planning and decision-making process. These regulations specify that an EA be prepared for the following purposes:

- To briefly provide sufficient analysis and evidence for determining whether or not to prepare an EIS or a Finding of No Significant Impact (FONSI);
- To aid an agency's compliance with NEPA when an EIS is deemed unnecessary or facilitate EIS preparation when one is necessary; or,
- To provide a basis for continuing or terminating the Proposed Action.

As appropriate, the Air Force (as the lead agency) will issue either a FONSI or a Notice of Intent for preparing an EIS. If the EA results in a FONSI, the public would be notified of the availability of the EA and FONSI through local news media. The Air Force would consider any comments submitted by agencies, organizations, or members of the public on the Proposed Action or the EA.

### 1.5.2 Required Coordination

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, and 32 CFR 989.14(1), the Air Force must notify relevant federal, state, and local agencies and allow them sufficient time to make known their environmental concerns specific to the Proposed Action. Comments submitted by these entities during the environmental review process will be incorporated into the analysis of potential environmental impacts conducted as part of the EA. Copies of correspondence, verbal contact documentation, and agency responses are included as Appendix B of this EA.

## 1.6 Organization of the Document

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This EA is organized into five chapters and two appendices.

**Chapter 1** Contains an introduction; a statement of the need for the action; objective of the action; scope of the environmental review (including subjects not evaluated in this EA); applicable regulatory requirements; and, organization of this EA.

**Chapter 2** Identifies the selection criteria for alternatives; describes the alternatives considered but eliminated from further consideration; details the proposed action; presents information on past and reasonably foreseeable future actions; identifies the preferred alternative; and, summarizes the environmental impacts for each alternative.

**Chapter 3** Contains a general description of the biophysical resources and baseline conditions that potentially could be affected by the Proposed Action or No Action Alternative.

**Chapter 4** Describes the environmental consequences of the Proposed Action and the No Action Alternative, identifies potential cumulative impacts and mitigation for impacts determined to be significant.

**Chapter 5** Lists preparers of the EA, persons and agencies consulted during preparation of the EA, sources of information used in preparation of this EA, and distribution of the Draft EA.

**Appendix A** Air Force Form 813

**Appendix B** Interagency and Intergovernmental Coordination for Environmental Planning Correspondence

## CHAPTER 2

### DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

The Air Force is proposing to privatize military housing on McChord AFB, Washington. The proposed privatization action would include the transfer and integration of Air Force housing on McChord AFB with the existing Fort Lewis residential community. Housing would be managed and operated by a Project Owner under a lease agreement

#### 2.1 Project Location

McChord AFB is located in Pierce County in western Washington, approximately five miles east of Puget Sound and one mile south of the city of Tacoma. Interstate 5 (Pacific Highway SW), west of the Base, serves as a major access route to McChord AFB. Communities located around the Base include the City of Lakewood, town of Steilacoom, and the unincorporated areas of Brookdale, Spanaway, and Parkland. To the west and south of McChord AFB are the off-Base neighborhoods known as Springbrook and American Lake Garden Tract. McChord AFB occupies approximately 4,600 acres, with the southern border of the Base contiguous to the U.S. Army Fort Lewis Military Reservation (Figure 2-1).



Figure 2-1. Location of the Proposed Action

The Proposed Action would result in:

- privatization of existing Air Force housing units in three housing areas on McChord AFB (the main housing area, Command Circle and The Bricks);
- construction of privatized housing on an undeveloped parcel (Westcott Hills); and,
- privatization of an off-Base sewage lift station and an off-Base storm water drainage easement.

McChord AFB family housing is comprised of seven neighborhoods located in three general locations. Figure 2-2 shows the location of housing areas on McChord AFB. Five of the neighborhoods (Parcels 32, 33, 34, 35 and 36) comprise a centralized housing area in the western area of the Base. Command Circle housing (Parcel 38) is located at the north end of the Base northwest of the runway, and The Bricks housing area (Parcel 37) is located west of the runway. Infrastructure for the Base water system (two wells, each with a pump, associated equipment and pump building, pipes and two water towers) is located on Parcel 39 which does not contain any housing. The Westcott Hills parcel (Parcel 40) is a forested natural area southeast of the main housing area that is used for recreational activities such as horseback riding (Figure 2-3).

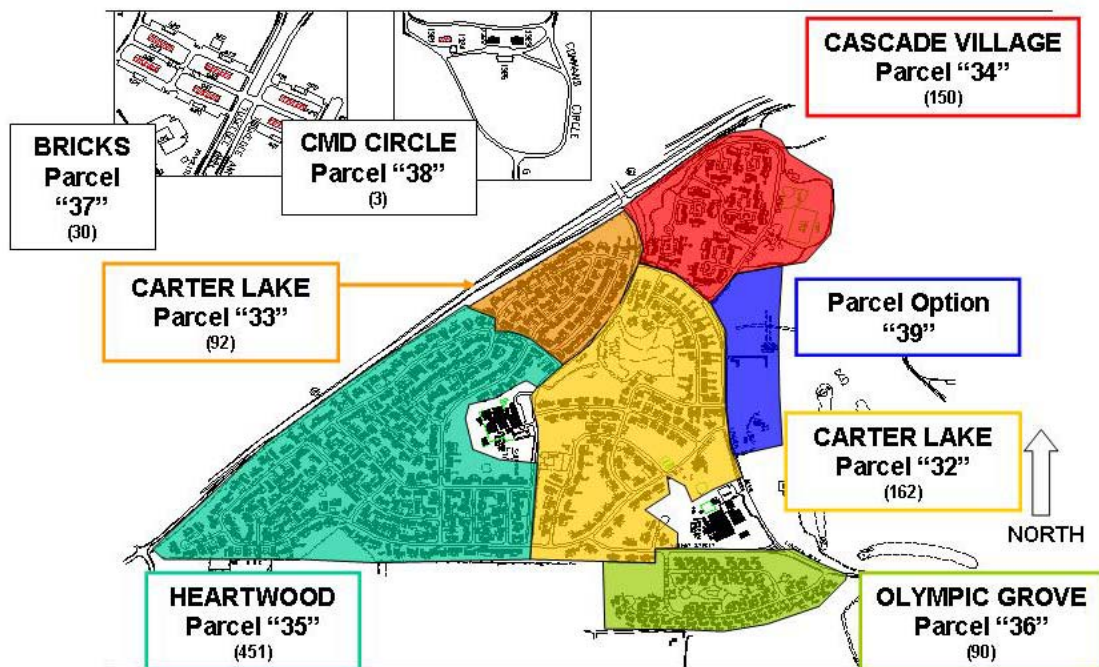


Figure 2-2. Existing Military Family Housing and Undeveloped Areas on McChord AFB



Figure 2-3. Westcott Hills (Parcel 40) on McChord AFB

A total of 978 existing housing units are located on McChord AFB. A minimal number of housing units are occupied by military personnel from other branches who are assigned to McChord AFB. Table 2-1 provides a summary of the existing housing units on the Base.

**Table 2-1. Existing Housing on McChord AFB**

Parcel	Description	Housing Units	Year of Construction	Size of Parcel (acres)
32 and 33	Carter Lake	254	1959	109.9
34	Cascade Village	150	1964 to 1966	44.00
35	Heartwood	451	1958 to 1959	110.44
36	Olympic Grove	90	1998	33.33
37	The Bricks	30	1939	7.14
38	Command Circle	3	1929	5.27
<b>Total</b>		<b>978</b>		<b>310.08</b>

Table 2-2 identifies two additional parcels of land (without existing housing) that would be leased as part of the privatization. The proposed privatization would result in lease of approximately 310 acres of land containing existing housing and approximately 42 acres of undeveloped land. A total of approximately 352 acres of land would be leased to the Project Owner for the proposed privatization.

**Table 2-2. Undeveloped Parcels of Land on McChord AFB to be Leased for Housing Privatization**

Parcel	Description	Size of Parcel (acres)
39	Undeveloped/Water Infrastructure	17.58
40	Westcott Hills	24.91
<b>Total</b>		<b>42.49</b>

The off-Base sewage lift station is located in the American Lake Garden Tract community at the southeast corner of 146<sup>th</sup> Street SW and Spring Street SW. The lift station transports wastewater from the primary McChord AFB housing areas and on-Base schools to the Fort Lewis wastewater treatment plant. The sewage lift station and associated wastewater lines would be leased as part of the housing privatization.

An off-Base storm water drainage easement held by the Air Force is located southwest of the housing areas, west of Interstate 5 between Thorne Lane, Spruce Street and Union Avenue. This easement would be transferred as part of the housing privatization. Figure 2-1 shows the location of the lift station and storm drainage easement in relation to the housing areas on McChord AFB.

## 2.2 History and Mission of McChord AFB

Tacoma Field was established in 1938 with acquisition of 912 acres from Pierce County. In 1940, the airport was dedicated as McChord Field in memory of Colonel William C. McChord, Chief of the Army Air Corps Training and Operations Division. In 1947, the 62d Troop Carrier Group moved to McChord Field establishing it as an airlift facility. In 1950, McChord AFB became part of the 25<sup>th</sup> Air Division of the Air Defense Command. The first Lockheed C-141 Starlifter arrived in 1966 with this aircraft conversion completed in 1969. Control of McChord AFB passed from the 25<sup>th</sup> Air Division to the Military Airlift Command in 1968. In 1995, the Chief of Staff of the Air Force announced that McChord AFB would be the west coast base for new C-17 Airlifter. The first C-17 arrived at McChord AFB in 1999 (USAF, 2003).

In 1992, the Military Airlift Command and the Strategic Air Command were inactivated. Air Mobility Command (AMC) was formed from elements of these two organizations to provide a worldwide airlift system. The mission of AMC is to provide airlift, air refueling, special air missions, aeromedical

evacuation, operational support airlift, weather reconnaissance, and combat camera/courier service in support of national objectives. As the Air Force global reach provider, AMC serves as the lead command for requirements, operating procedures, aircrew training, tactics, standardization and evaluation, and overall fleet management for tanker and airlift aircraft. Serving as the Air Force component of the U.S. Transportation Command, AMC is the single manager for air mobility and, when directed, provides forces to theater commands to support wartime taskings. The command also provides tanker forces to meet single integrated operational plans.

The 62d Airlift Wing at McChord AFB is one of AMC's twelve active duty airlift wings. The primary mission of McChord AFB is to provide for the airlift of troops, equipment, passengers, and mail during times of peace or war. This mission fully supports AMC's global reach responsibilities.

### 2.3 Description of the Proposed Action

The proposed privatization would include the transfer by deed of 978 housing units on McChord AFB to a Project Owner and implementation of a long-term lease to the Project Owner for up to 353 acres of land associated with the housing units. Approximately 43 of the 353 acres are undeveloped. Land to be leased would exclude the recreation center, skate park, Carter Lake Elementary School, and Heartwood Elementary School. Both schools are under the control of the U.S. Department of Education (DOE). Five designated wetlands and buffer zones around each wetland would be leased as part of the Proposed Action. Three water supply wells, associated well protection zones, water tower and well houses would not be conveyed and would remain under Air Force control.

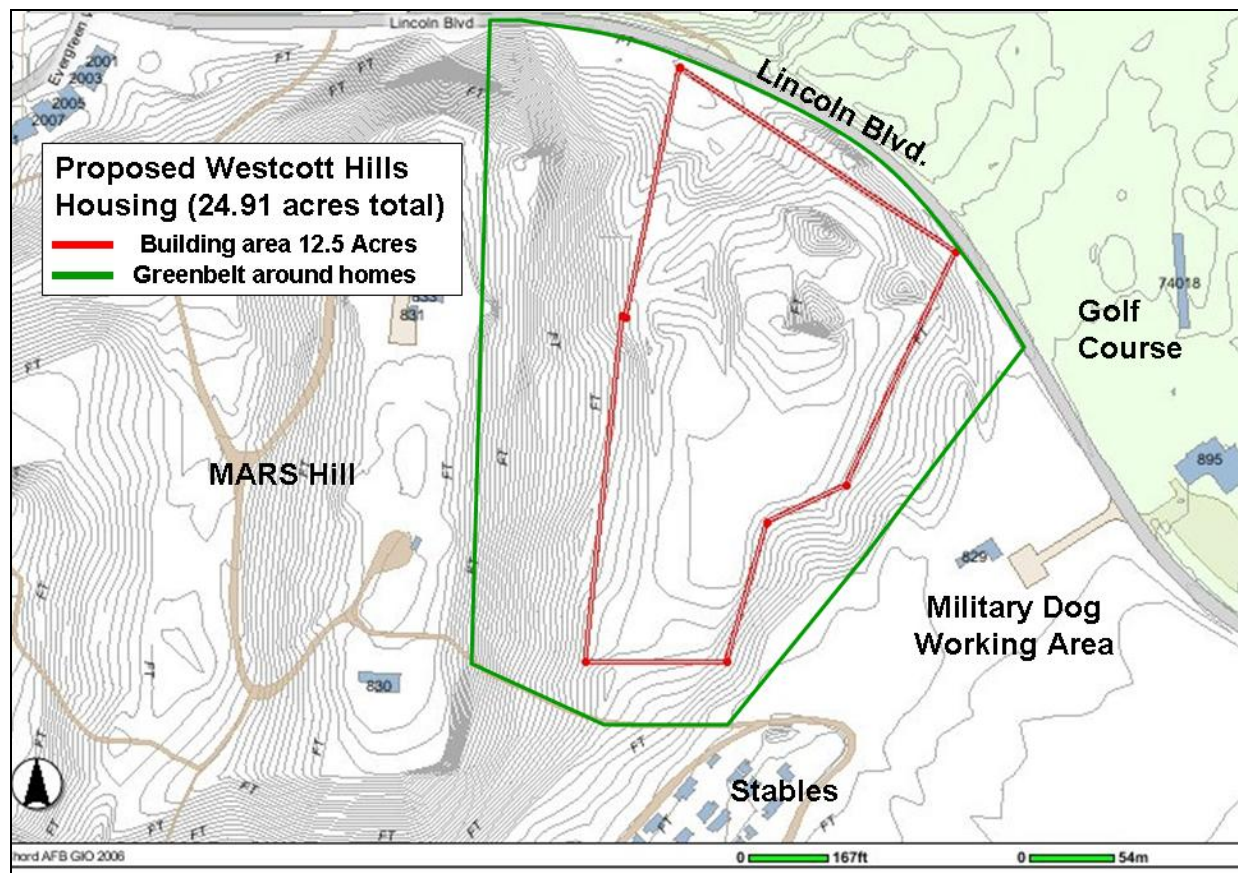
It is anticipated that the total number of units required on McChord AFB will not exceed 608 units at completion of the project. The Proposed Action would also include transfer and improvements to community amenities (e.g., recreational areas such as playgrounds and athletic fields) and ancillary facilities (e.g., garages, sheds, and bus stop shelters), and infrastructure (e.g., roads, sidewalks, parking areas, and selected utilities). The Project Owner would maintain the housing units, improvements, and land located within the leased area throughout the 44-year lease period. The Project Owner would selectively demolish, construct, and renovate housing units as required to bring housing up to current DoD housing standards. The scope of the Proposed Action is shown in Table 2-3.

**Table 2-3. Project Scope for Proposed Action**

Parcel	Description	Existing Housing Units	Duration of Lease (years)	Units to be Demolished	Units to be Renovated	New Units to be Constructed	Total No. of Units at End State
32	Carter Lake	162	44	41	121	0	121
33	Carter Lake (Short Term)	92	44	20	72	0	72
34	Cascade Village	150	44	150	0	61	61
35	Heartwood	451	44	376	75	157	232
36	Olympic Grove	90	44	0	0	0	90
37	The Bricks <sup>a</sup>	30	8	0	0	0	0
38	Command Circle <sup>b</sup>	3	3	3	0	0	0
39	Undeveloped Land <sup>c</sup>	0	44	0	0	0	0
40	Westcott Hills	0	44	0	0	32	32
Total		978	--	590	268	250	608
<sup>a</sup> Thirty (30) units at The Bricks would be conveyed back to the Air Force. <sup>b</sup> Land at Command Circle would be returned to the Air Force. <sup>c</sup> Existing water supply infrastructure would remain under control of the Air Force. This land would be retained by the Air Force in the event that an acceptable use of the land is not proposed by the Project Owner.							

The Proposed Action is composed of nine parcels of land as follows:

- 1     ■ **Carter Lake.** Parcel 32 includes 41 units that would be demolished and 121 units that would be  
2     renovated. The 3.88-acre Carter Lake, an 80-ft wetland buffer surrounding it, and its associated  
3     recreational area would be leased to the Project Owner as part of the housing privatization. A  
4     well protection zone around the drinking water well (Bldg 3410) along Juniper Street would  
5     remain under Air Force control. The conveyance area for Carter Lake housing excludes the  
6     skate park and recreation center along Dogwood Street. A 50-meter force protection buffer  
7     would be established along the southern portion of the housing area boundary with American  
8     Lake Garden Tract.
- 9     ■ **Carter Lake (Short Term).** Parcel 33 includes 20 units that would be demolished and 72 units  
10    that would be renovated.
- 11    ■ **Cascade Village.** 150 units would be demolished and 61 new homes would be constructed on  
12    this parcel. The new layout for this neighborhood would incorporate a 160-meter sound buffer  
13    along Interstate 5. The existing baseball and soccer fields would be improved for continued  
14    recreational use. Restroom facilities along Ginkgo Drive adjacent to the athletic fields would be  
15    removed. Historic Landfill 04 is located in Parcel 34 and any development of the surface of the  
16    landfill will require advance regulatory review and approval.
- 17    ■ **Heartwood.** 376 units would be demolished, 75 units would be renovated, and 157 units would  
18    be constructed at Heartwood housing area. Heartwood Elementary School (along Woodbrook  
19    Road) would be excluded from the project. An 80-ft wetland buffer around 1.91 acres of  
20    Emerson Lake would be maintained. A 50-meter force protection buffer would be established  
21    along the southern portion of the housing area boundary with American Lake Garden Tract.
- 22    ■ **Olympic Grove.** 90 units in Parcel 36 would be conveyed in an “as is” condition to the Project  
23    Owner. An 80-ft buffer around the Clark/Walnut wetland off Lincoln Boulevard, and a 50-ft buffer  
24    around the Olympic wetland off Evergreen Way SW, would be maintained. A 50-meter force  
25    protection buffer would be established along the western portion of the housing area boundary  
26    with American Lake Garden Tract.
- 27    ■ **The Bricks.** This housing area consists of six buildings (comprising 30 housing units) and eight  
28    outlying buildings (garage/storage support buildings for the housing) on either side of Tuskegee  
29    Airmen Boulevard. The six buildings at The Bricks are within the McChord AFB Historic District  
30    and are designated as Contributing Buildings to this historic district. Title to the 30 housing units  
31    and leasehold interest in the land would be conveyed to a Project Owner for eight years under  
32    the terms and conditions of a preservation covenant which will restrict the removal or  
33    disturbance of historical structures or features. These structures would be conveyed back to the  
34    Government after eight years.
- 35    ■ **Command Circle.** This housing area consists of two Senior Officer Quarters and one Senior  
36    Non Commissioned Officer housing unit. The area is also known as the 1300 Area. This parcel  
37    would be leased to the Project Owner for three years during which time the three units would be  
38    demolished. Land would be returned to the Air Force upon termination of the lease.
- 39    ■ **Parcel 39.** A primarily undeveloped 17.58-acre parcel of land along Lincoln Boulevard known as  
40    Parcel 39 would be leased. Excluded from this parcel would be existing water infrastructure (two  
41    drinking water wells and associated 100-ft well protection zones, two drinking water towers, well  
42    houses and access roads to these structures). A 150-ft buffer around the Porter Hills wetland  
43    (also known as Tank wetlands) extending over a portion of the eastern side of Parcel 39 would  
44    be maintained (the Porter Hills wetland would not be part of the conveyance area). This parcel  
45    would be retained as open space. In the event that an acceptable use of the land is not  
46    proposed by the Project Owner, Parcel 39 would be returned to the Air Force.
- 47    ■ **Parcel 40.** The Westcott Hills parcel is a 24.91-acre undeveloped, forested natural area that  
48    would be leased and converted into a housing area with 32 new homes. A forested greenbelt  
49    would be retained around the perimeter of the parcel, with housing to be constructed within the  
50    interior 12.5-acre buildable area (Figure 2-4). The new housing area would be accessed via a  
51    new roadway from Lincoln Boulevard. The Westcott Hills parcel is located south of the  
52    Whispering Firs golf course, the Military Affiliated Radio System (MARS) Hill communication  
53    facility to the west, horse stables to the south, and the military working dog area on the east.



**Figure 2-4. Proposed Westcott Hills (Parcel 40) Housing on McChord AFB**

In addition to the estimated 268 existing units that would be renovated on Parcels 32, 33 and 35, an estimated 250 replacement housing units would be constructed on Parcels 34, 35 and 40 to yield a total of 608 units at completion of the project.

### 2.3.1 Construction/Demolition Schedule

The anticipated construction schedule would extend over an 8-year transition period ending in 2016, and it is assumed that construction activities would start in late 2008.

### 2.3.2 Sewage Lift Station

The off-Base sewage lift station that pumps wastewater from McChord AFB housing and schools to the Fort Lewis wastewater treatment plant would be conveyed to the Project Owner. The lift station pumps wastewater from dwellings in four of the housing areas on McChord AFB and from the two on-Base schools to the top of a hill into a sewer manhole and gravity flows south through Fort Lewis to the wastewater treatment plant. The lift station was constructed in 1956 and retrofitted in 2003. In September 2006, a new level control system was installed. The design capacity of the lift station is 1,200 gallons per minute (1.7 million gallons per day). The average flow is 192,000 gallons per day. The lift station uses commercially-supplied power (480 volts) transmitted to the site via power lines managed by the Air Force Electrical Shop. The lift station has a diesel-powered stand-by generator on the site. The Project Owner will assume responsibility for the sewage lift station as part of housing privatization.

### 2.3.3 Storm Water Drainage Easement

The off-Base storm water drainage easement is a strip of land 20 ft wide and 855 ft in length located in the American Lake Garden Tract community (Pierce County). The easement consists of a 24-inch culvert at Thorne Lane, a drainage ditch enclosed with a 6-ft chain link fence with 3-strand barbed wire, and a

36-inch concrete culvert at Union Avenue. This drainage ditch would be conveyed to the Project Owner who would be responsible for its maintenance.

#### **2.3.4 Infrastructure Improvements**

Infrastructure changes associated with the Proposed Action would include upgrade or extension of utility services, road surface improvements, and construction of access roads, parking areas, driveways, and sidewalks. The sewer system (including the off-Base sewage lift station) and other utility lines would be conveyed as part of housing privatization. Utilities would be conveyed to the Project Owner in accordance with the housing privatization Utilities Service Agreement to be issued by the Government.

#### **2.3.5 Access to Housing Areas**

Improvements to the street grid and traffic flow would be designed as part of the Master Plan for privatized housing on McChord AFB. The main flow of traffic would remain along Lincoln Boulevard. Access to the centralized housing area would continue to be via the Housing Gate located at Woodbrook Road SW and Interstate 5. This gate is open from 6 am to 9 am and 3 pm to 6 pm on weekdays. This gate is used for privately-owned vehicles (POV) and buses, and experiences approximately 330 inbound vehicles per day.

#### **2.3.6 Community Amenities**

A new Community Center would be constructed in the central housing area between the Carter Lake, Heartwood and Olympic Grove residential communities. The development plan would include an interconnected neighborhood street network, neighborhood parks, walking trails that connect neighborhoods to school and community amenities, community wide recreational facilities, open-space parks, and interconnected, lighted bike and walking trails throughout the neighborhoods (Equity Residential, 2008).

#### **2.3.7 Mission Changes**

The Proposed Action does not include any mission changes.

#### **2.3.8 Personnel Changes**

While it is anticipated that the McChord AFB housing office would assume responsibility for housing privatization oversight, the Proposed Action may result in elimination or transfer of some Air Force housing personnel. The McChord AFB housing office is staffed with approximately five management and administrative personnel and 12 maintenance personnel. Administrative and management positions would either be converted into asset management positions or eliminated once privatization is implemented. Maintenance positions would either be transferred to the Army or eliminated when these functions are carried out by the Fort Lewis residential operation.

### **2.4 Selection Criteria for Alternatives**

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The Air Force initially considered a range of alternatives that would meet the purpose and need for providing housing for military personnel assigned to McChord AFB. A range of preliminary alternatives was selected based on two key criteria:

- Proximity to existing housing units and associated support facilities; and,
- Efficient use of available and buildable land.

### **2.5 Alternatives Considered but Eliminated from Further Evaluation**

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Suitable and available land area on McChord AFB is limited due to proximity of the McChord AFB airfield and its associated training and support areas. Acquisition of additional land would not be desirable given the cost considerations required. Buildable land on McChord AFB is also restricted due to proximity to Interstate 5 along the western boundary of the main housing area. Force protection requirements also reduce the amount of available land for housing.

## 2.5.1 MILCON Funding for Housing Construction

Traditional military construction using appropriated funds, or MILCON funding, for the construction of replacement and/or new housing was identified as an alternative for McChord AFB. Traditional housing MILCON funding for bringing housing up to current standards is not available to meet the goal. This is possibly due to the existence of privatization initiatives that have been used to meet the ongoing housing need. Therefore, the sole use of MILCON funding to provide housing was eliminated from further consideration.

## 2.5.2 Renovate Existing Housing with MILCON Funding

The Air Force considered use of MILCON funding to renovate existing government-controlled housing units to alleviate space deficiencies in the living areas. This alternative would require MILCON funding, which is not sufficient to meet the DoD 2010 housing goal. For these reasons, this alternative was eliminated from further consideration.

## 2.6 No Action Alternative

Under the No Action Alternative, the Air Force would not privatize the Government-owned housing. The installation would continue to be responsible for providing, operating, and maintaining housing units. New construction and renovations required to upgrade the substandard housing conditions would be conducted at a substantially slower pace using limited MILCON funding, effectively preventing McChord AFB from meeting the DoD commitment to upgrade inadequate housing by 2010.

## 2.7 Description of Reasonably Foreseeable Further Actions Relevant to Cumulative Impacts

A cumulative impact, as defined by the CEQ (40 CFR 1508.7), is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (federal or non-federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Cumulative impacts are most likely to arise when a relationship exists between an alternative and other actions that are expected to occur in a similar location or during a similar time period. Actions occurring in the same location or in proximity to each other would be expected to have more potential for cumulative impacts than geographically separated actions. Similarly, actions that coincide, even partially, in time would tend to offer a higher potential for cumulative effects.

The Air Force is planning other projects for McChord AFB that could occur during the same time period as the Proposed Action. Other projects in the vicinity of McChord AFB that are planned or proposed by other agencies include the Cross Base Highway which has no connectivity with McChord AFB. Projects with a potential for overlap with the Proposed Action are limited to those projects in the immediate vicinity of the on-Base properties as identified on Table 2-4. These projects are assessed from a cumulative perspective in this EA.

**Table 2-4. Cumulative Projects Considered for the Proposed Action**

Project	Size (Square Feet) <sup>a</sup>	Start Date	Duration
Secondary containment around grease dumpsters at Bldg 895 (Golf Course Club) <sup>b</sup>	3,500	FY09	2 months
Sidewalks and concrete pad for outside storage at Bldg 829 (Military Working Dog Kennels) <sup>b</sup>	2,000	FY12	2 months
<sup>a</sup> Size depicts total estimated surface area for the facility. <sup>b</sup> Part of Installation Development (ID) at McChord AFB			

## 2.8 Identification of Preferred Alternative

The Preferred Alternative is the proposed privatization and integration of housing units at McChord AFB into the Fort Lewis residential community (Proposed Action) as described in Subchapter 2.3.

## 2.9 Summary of Environmental Impacts and Mitigation Requirements

With incorporation of best management practices and avoidance measures into design and construction, no significant impacts would be expected from the proposed action as evaluated in this EA (to confirm). Impacts for each resource category are described in Table 2-5.

**Table 2-5. Summary of Environmental Impacts for McChord AFB**

Resource (Applicable Subchapter)	Proposed Action	No Action Alternative
Mission (Subchapter 4.1)	The Proposed Action would not result in any change to the mission of McChord AFB.	The No Action Alternative would not result in any change to the mission of McChord AFB.
Land Use (Subchapter 4.2)	The Proposed Action would result in a conversion of a heavily-forested natural area designated for passive recreation and conservation into a new housing area.	The No Action Alternative would not result in any change to existing or planned land use on McChord AFB.
Noise (Subchapter 4.3)	Noise impacts from demolition and renovation of housing at McChord AFB would be limited to short-term, localized increases in noise levels directly associated with the use of demolition and construction equipment. After units are constructed, the noise environment would be similar to baseline conditions. These effects would not be considered significant impacts to the noise environment.	The No Action Alternative would not result in any change to noise conditions.
Air Quality (Subchapter 4.4)	Fugitive dust from ground disturbing activities and combustive emissions from renovation equipment would be generated during demolition and renovation. Air pollutant emissions would be short-term and localized, and would not result in any adverse effects on overall ambient air quality. Demolition would include removal of asbestos and lead-based paint, and this activity would be conducted in accordance with applicable environmental requirements for the safe removal and disposal of these materials. Project emissions during construction would be less than USEPA threshold limits and, would not be considered significant.	The No Action Alternative would not result in any change to air quality conditions on McChord AFB.
Geology and Soils (Subchapter 4.5)	The Proposed Action would include construction of housing on Westcott Hills which is situated on the Vashon Till geologic formation which is relatively impermeable. The housing area on this site would be designed and constructed in accordance with recommendations of a site-specific geotechnical investigation.	The No Action Alternative would not result in any change to geologic conditions or soils on McChord AFB.
Water Resources (Subchapter 4.6)	The Proposed Action would not result in any impacts to surface or ground water. Housing areas would be designed and constructed in accordance with best management practices for storm water management and erosion control.	The No Action Alternative would not result in any change to surface or ground water on McChord AFB.

1

**Table 2-5. Summary of Environmental Impacts for McChord AFB (Cont'd)**

<b>Resource (Applicable Subchapter)</b>	<b>Proposed Action</b>	<b>No Action Alternative</b>
Biological Resources (Subchapter 4.7)	The main housing area is located in developed areas that do not provide habitat for listed species. The Proposed Action would include construction of 32 homes on an undeveloped natural forested area and result in loss of 12.5 acres of Forest Management Stand No. 25. Conversion of this parcel would result in loss of 12.5 acres of the 100-acres Westcott Hills Watchable Wildlife Area. Surveys for western gray squirrel, white-tip aster and Torrey's peavine have not been conducted. Wetlands in the project area would be managed by prohibiting development within the designated buffer zone for each wetland.	The No Action Alternative would not result in any change to biological resources on McChord AFB.
Cultural Resources (Subchapter 4.8)	<p>The Proposed Action would result in privatization of The Bricks (Historic Housing Row complex) which contains Contributing Structures to the McChord Field Historic District. The Air Force would execute a preservation covenant to restrict loss of historic resources. Water infrastructure on Parcels 32 and 39 would not be conveyed but are eligible for evaluation for NRHP listing. The proposed Westcott Hills housing site would not be expected to be archaeologically sensitive.</p> <p>The Proposed Action would involve ground-disturbance during demolition and construction of housing. Groundwork may result in the inadvertent discovery of subsurface cultural materials. Damage to, or loss of any cultural artifacts would be considered a significant impact. To avoid this impact, the Air Force will ensure that the BMP for inadvertent discovery of cultural material is included in project design and construction.</p> <p>The Proposed Action would not be located in any area that is considered a traditional cultural resource area. Impacts to traditional cultural resources would not be expected as a result of the Proposed Action.</p>	The No Action Alternative would not result in any change to cultural resources on McChord AFB.
Environmental Management (Subchapter 4.9)	The Proposed Action would not result in any impacts to environmental management. Construction of housing areas would not result in creation of any contaminated sites nor would it impede the progress of cleanup at existing contaminated sites. The privatization project manager would be responsible for disposal of demolition wastes associated with privatization in accordance with Air Force management plans.	The No Action Alternative would not result in any change to environmental management efforts on McChord AFB.

2

Table 2-5. Summary of Environmental Impacts for McChord AFB (Cont'd)

Resource (Applicable Subchapter)	Proposed Action	No Action Alternative
Hazardous Materials and Wastes (Subchapter 4.10)	<p>With compliance with hazardous materials management procedures, significant impacts from hazardous materials would not be anticipated. Demolition of the existing housing would result in the generation of hazardous waste, particularly building materials with asbestos and LBP. Demolition wastes will be managed in accordance with the McChord AFB Asbestos Management and Operating Plan and the McChord AFB Lead-Based Paint Management Plan.</p> <p>The volume of chemicals procured for housing construction would not be expected to impact the ability of the Base to meet its reduction goals. The generation of hazardous waste would increase slightly during the demolition and construction. Increases would be temporary and would not impact the Base's attainment of the hazardous waste reduction goals. The demolition contractor will be responsible for asbestos removal before demolition. All friable asbestos will be removed by a licensed asbestos abatement contractor using approved abatement methods.</p> <p>The Air Force would ensure that the presence of any lead-based paint is identified before initiating demolition. Removal of lead-based paint shall comply with 29 CFR 1910.</p> <p>The Proposed Action would not be expected to result in interference with ongoing remediation or investigation activities at McChord AFB.</p> <p>Herbicide and pesticide contamination of the housing sites are not suspected as these sites were not used for agricultural purposes.</p> <p>Radon levels above the RAL would not be expected in the housing areas. The Proposed Action would not be expected to result in any impacts from radon.</p>	The No Action Alternative would not result in any change to hazardous materials and waste management on McChord AFB.
Utilities and Infrastructure (Subchapter 4.11)	<p>The Proposed Action would not increase personnel or housing on the Base. Impacts to transportation systems would not be considered significant.</p> <p>The solid waste generated from the construction and demolition activities would be disposed of in an approved landfill. This local landfill has sufficient capacity to accommodate future disposal needs. Impacts to solid waste would not be considered significant</p>	The No Action Alternative would not result in any change to infrastructure and utilities on McChord AFB
Visual Resources (Subchapter 4.12)	The Proposed Action would not result in any effects on scenic vistas or substantial damage to scenic resources. The proposed construction of 32 homes on Westcott Hills would result in a change in the visual appearance of the immediate area, and may result in emanation of artificial light, although the site would be shielded by trees.	The No Action Alternative would not result in any change to visual resources on McChord AFB.
Environmental Justice (Subchapter 4.13)	The Proposed Action would not result in any disproportionately adverse effects on minority or low-income populations. No significant impacts to air quality, traffic or noise would be expected.	The No Action Alternative would not result in any disproportionately adverse effects on minority or low-income populations..

## CHAPTER 3

### AFFECTED ENVIRONMENT

#### 3.1 Mission

McChord AFB is the home of the 62d Airlift Wing (62 AW), the 446 AW, an Air Force Reserve Command Reserve Associate unit, and other tenant units. The primary mission of McChord AFB is to provide for the airlift of troops, equipment, and passengers. To support National Military Strategy, the 62 and 446 AWs fly worldwide airlift missions and train C-17 aircrews in airlift, air refueling, and airdrop procedures.

#### 3.2 Land Use

McChord AFB consists of airfield, mission-related, administrative, industrial, community, medical, residential, and open space/recreation land uses. The Burlington Northern Santa Fe (BNSF) Railroad runs north-south through the Base, dividing it into western and eastern portions. The airfield is located in the eastern portion of the Base. Most mission-related facilities are situated around the airfield area; two small mission-related areas are in the southwestern part of the Base. Administrative, industrial, community, and outdoor recreation land uses are scattered throughout McChord AFB. The central housing area is located at the southwestern corner of the Base; several other housing units are located in the north and central portion of the Base.

An uninhabited part of the Fort Lewis Military Reservation is located south of McChord AFB. A number of communities are in the vicinity of the Base including the incorporated town of Lakewood, and the unincorporated areas of Tillicum, Ponder's Corner, Parkland, and Spanaway. Land use in the immediate vicinity of the Base is predominantly a mixture of residential, commercial, industrial, recreational, open space, and water (see Figure 3-1). Residential uses occur to the northwest and east of the Base, with a significant commercial district directly north of the Base. Commercial uses continue from this commercial district along Interstate 5, southwest of the Base. Several recreational land uses are located near the Base. Numerous bodies of water also exist near McChord AFB including American Lake, Gravelly Lake, and Steilacoom Lake.

##### 3.2.1 On-Base Land Use Planning

The Air Installation Compatible Use Zone (AICUZ) program is an on-going DoD program based on noise and safety that is designed to promote compatible land uses in the areas surrounding military airfields. AICUZ land use guidelines (see Table 3.2-1) reflect land use recommendations for clear zones (CZ), accident potential zones (APZ) I and II, and four noise zones. The following define the CZ and APZs.

- **Clear Zone Surface.** The CZ width is 3,000 feet (1,500 feet to either side of runway centerline) and extends outward 3,000 feet. Some obstructions may occur within the CZ if permitted under AICUZ land use guidelines, or if appropriate authorities waive airfield planning guidance. Of the three zones (i.e., CZ, APZI and APZ II, the CZ is the area with the greatest potential for an accident (see Figure 3-2).
- **Accident Potential Zone Surfaces.** APZ I begins at the outer end of the CZ and is 5,000 feet long and 3,000 feet wide. APZ II begins at the outer end of APZ I and is 7,000 feet long and 3,000 feet wide. APZ I has less accident potential than the CZ, and APZ II has less accident potential than APZ I.

None of the housing areas proposed for privatization are located within a CZ or APZ associated with the McChord AFB airfield.

Due to the presence of munitions storage areas on McChord AFB, the Air Force has established explosive hazard zones with designated land use restrictions based on hazard potential. These zones are designated by an Explosive Safety Quantity Distance arc that is proportional to the amount of explosives stored in a given area. Because of the possibility of accidental detonation of explosives at ordnance operations and storages areas, the construction of inhabited buildings, structures and recreational areas is prohibited within a designated explosives safety Quantity Distance (Q-D) as shown

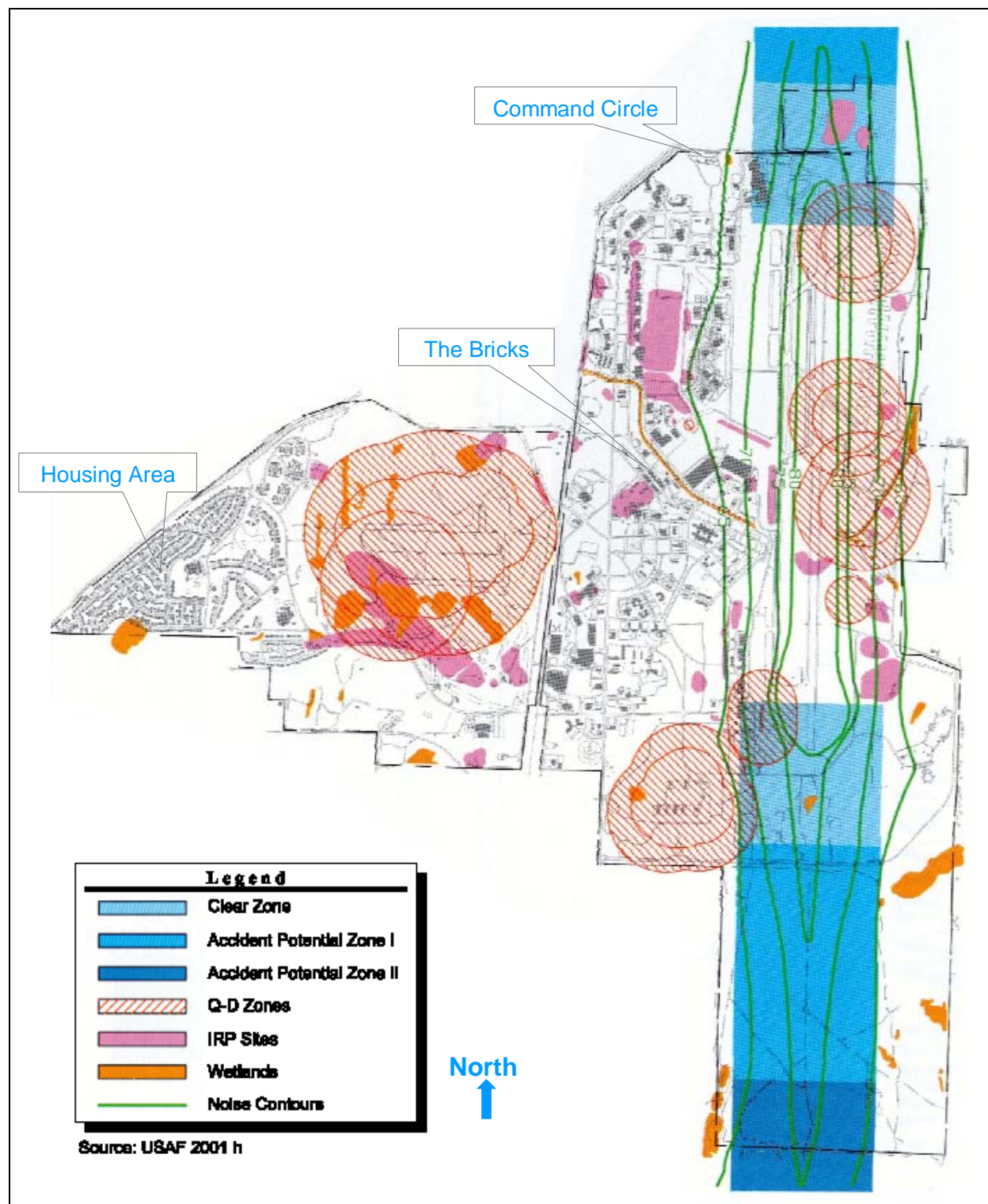


Figure 3-2. Land Use Constraints at McChord AFB



**Figure 3-3. Explosive Safety Quantity Distance Near Housing Areas and Westcott Hills**

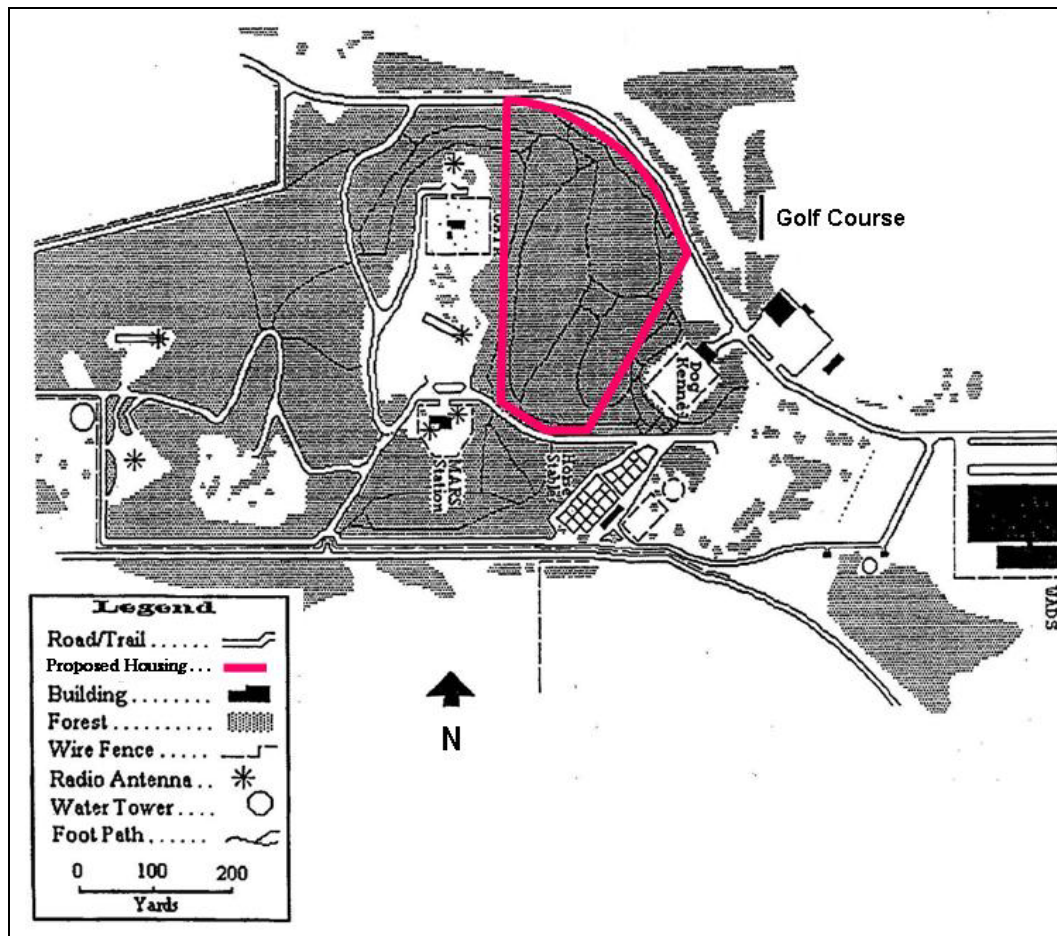
on Figure 3-2. None of the existing housing areas are within any Q-D arcs. The Westcott Hills (Parcel 40) housing area is approximately 200 feet from the Q-D arc, while Parcel 39 and the recreational area of Cascade Village are adjacent to the arc.

The existing housing areas on McChord AFB are designated for residential use. The proposed privatization would include two undeveloped parcels of land that would be leased to the Project Owner:

- A 24.91-acre parcel of forested natural land in the Westcott Hills is south of Lincoln Boulevard and across from the golf course. This undeveloped Westcott Hills parcel is used as a passive recreational area for horseback riding primarily by members of the McChord AFB Horseman's Club. Approximately 1.0 mile of riding trails/footpaths are found on the Westcott Hill parcel (Figure 3-4). This parcel is one of five designated Watchable Wildlife Areas on McChord AFB comprise (these areas total 269 acres).
- An 17.58-acre parcel of primarily undeveloped land known as Parcel 39 is located east of Lincoln Boulevard between the Cascade Village and Carter Lake housing areas. Land use on this parcel is forested natural area and water infrastructure.

### 3.2.2 Off-Base Land Use Plans and Zoning Regulations

The Comprehensive Plan for Pierce County manages growth on land within Pierce County. The comprehensive plan sets forth goals and objectives for overall planning and coordination among Pierce County and its cities and towns, and among adjacent counties. Within Pierce County, zoning is consistent with the future land uses proposed within the comprehensive plan. Generalized proposed land uses include a mixed use district (concentration of commercial, office, and multifamily residential developments) to the north and west of McChord AFB, moderate-density single-family residential areas to the west and east, and a high-intensity employment center (heavy industrial and manufacturing) to the north and east. Pierce County land located west of McChord AFB is zoned for moderate-density single-family residential and commercial/office uses.



**Figure 3-4. Westcott Hills Watchable Wildlife Area**

The City of Lakewood is primarily comprised of residential, commercial, and industrial land uses. The generalized existing land uses are consistent with the Pierce County Comprehensive Plan. The City of Lakewood Interim Comprehensive Plan and the City of Lakewood Interim Zoning Code provide policies and objectives for management of the city's growth. The future land uses proposed within the city's interim comprehensive plan are compatible with the city's Zoning Code.

In 1992, a Joint Land Use Study (JLUS) was developed by Pierce County for the area surrounding McChord AFB. The JLUS is a comprehensive study of land uses adjacent to McChord AFB, and addresses McChord AFB, Fort Lewis, Camp Murray (Washington National Guard), and 10 local governments surrounding these installations. The goal of the JLUS is to encourage compatible development and redevelopment of areas around the military installations, while balancing the needs of the local communities with the military mission.

The two off-Base properties that would be privatized as part of the Proposed Action are located within the limits of the City of Lakewood. The sewage lift station is located within the American Lake Garden Tract community of the city.

### **3.3 Noise**

The characteristics of sound include parameters such as amplitude (loudness), frequency (pitch), and duration. Sound varies over an extremely large range of amplitudes. The decibel, a logarithmic unit that accounts for the large variations in amplitude, is the accepted standard unit for describing levels of sound.

Different sounds have different frequency contents. Because the human ear is not equally sensitive to sound at all frequencies, a frequency-dependent adjustment, called A-weighting and expressed as dBA, has been devised to measure sound similar to the way the human hearing system responds.

Aircraft operations are the primary source of noise at McChord AFB. Aircraft activities include aircraft and aircraft maintenance operations. During periods of no flying activity, noise results primarily from aircraft maintenance and shop operations, ground traffic movement, occasional construction, and similar sources. This noise is almost entirely restricted to the Base itself and is comparable to sounds that occur in typical communities. It is during periods of aircraft ground or flight activity that the noise environment changes.

An environmental noise study of the central housing area on McChord AFB was conducted in November 2007 (U.S. Army, 2007). In this study, the noise from Interstate 5 west of the housing area was monitored at nine locations. The monitoring results yielded a calculated average day-night A-weighted noise level ranging from 60.3 to 67.3 dBA that corresponded to a perpendicular distance to the Interstate 5 centerline of approximately 1,400 to 370 ft, respectively. The normally incompatible noise zone associated with 65 dBA was shown to overlap several rows of existing homes adjacent to Interstate 5 in the Heartwood and Cascade Village neighborhoods. In addition to identifying a sound buffer zone associated with Interstate 5 transportation noise, the 2007 study provided recommendations for noise level reductions in planned renovations, interior noise reductions, consultation with the Washington State Department of Transportation concerning highway barrier design, and increasing the height of the current noise barrier along Interstate 5.

### 3.4 Air Quality

#### 3.4.1 Air Pollutants and Regulations

Air quality in any given region is measured by the concentration of various pollutants in the atmosphere, typically expressed in units of parts per million (ppm) or in units of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). Air quality is not only determined by the types and quantities of atmospheric pollutants, but also by surface topography, size of the air basin, and by prevailing meteorological conditions.

The Clean Air Act (CAA), as amended in 1977 and 1990, provides the basis for regulating air pollution to the atmosphere. Different provisions of the CAA apply depending on where the source is located, which pollutants are being emitted, and in what amounts. The CAA required the USEPA to establish ambient ceilings for certain criteria pollutants. These criteria pollutants are usually referred to as the pollutants for which the USEPA has established National Ambient Air Quality Standards (NAAQS). The ceilings were based on the latest scientific information regarding the effects a pollutant may have on public health or welfare. Subsequently, the USEPA promulgated regulations that set NAAQS. Two classes of standards were established: primary and secondary. Primary standards define levels of air quality necessary, with an adequate margin of safety, to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards define levels of air quality necessary to protect public welfare (e.g., decreased visibility, damage to animals, crops, vegetation, wildlife, and buildings) from any known or anticipated adverse effects of a pollutant.

Air quality standards are currently in place for six criteria pollutants: carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), sulfur oxides (SO<sub>x</sub>, measured as sulfur dioxide [SO<sub>2</sub>]), lead (Pb), and particulate matter. Particulate matter standards incorporate two particulate classes: 1) particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM<sub>10</sub>); and, 2) particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers (PM<sub>2.5</sub>). Only PM<sub>10</sub> is regulated by the rule. There are many suspended particles in the atmosphere with aerodynamic diameters larger than 10 micrometers. The collective of all particle sizes is commonly referred to as total suspended particulates (TSP). TSP is defined as particulate matter as measured by the methods outlined in 40 CFR Part 50, Appendix B. The NAAQS are the cornerstone of the CAA. Although not directly enforceable, they are the benchmark for the establishment of emission limitations by the states for the pollutants USEPA determines may endanger public health or welfare.

Ozone (ground-level ozone), which is a major component of "smog," is a secondary pollutant formed in the atmosphere by photochemical reactions involving previously emitted pollutants or precursors. Ozone precursors are mainly nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOC). NO<sub>x</sub> is the designation given to the group of all oxygenated nitrogen species, including nitric oxide (NO), NO<sub>2</sub>, nitrous oxide (N<sub>2</sub>O), and others. However, only NO, NO<sub>2</sub>, and N<sub>2</sub>O are found in appreciable quantities in the atmosphere. VOCs are organic compounds (containing at least carbon and hydrogen) that participate in photochemical reactions and include carbonaceous compounds except metallic carbonates, metallic

carbides, ammonium carbonate, carbon dioxide (CO<sub>2</sub>), and carbonic acid. Some VOCs are considered non-reactive under atmospheric conditions and include methane, ethane and other organic compounds. Ozone is a secondary pollutant and is not directly emitted from common emissions sources. Therefore, to control ozone in the atmosphere, NO<sub>x</sub> and VOC emissions are controlled. For this reason, NO<sub>x</sub> and VOC are calculated and reported in emission inventories.

The CAA does not make the NAAQS directly enforceable, but requires each state to promulgate a State Implementation Plan (SIP) that provides for "implementation, maintenance, and enforcement" of the NAAQS in each Air Quality Control Region (AQCR) in the state. The CAA allows states to adopt air quality standards more stringent than the federal standards. The Washington Department of Ecology (WDOE) administers the state's pollution program under authority of Chapter 43.21A, Department of Ecology, Revised Code of Washington. Table 3-2 lists national and Washington state ambient air quality standards.

**Table 3-2. National and State Ambient Air Quality Standards**

Criteria Pollutant	Averaging Time	Primary NAAQS <sup>a,b,c</sup>	Secondary NAAQS <sup>a,b,d</sup>	Washington Standards <sup>a,b</sup>
Carbon Monoxide	8-hour 1-hour	9 ppm (10 mg/m <sup>3</sup> ) 35 ppm (40 mg/m <sup>3</sup> )	No standard No standard	9 ppm (10 mg/m <sup>3</sup> ) 35 ppm (40 mg/m <sup>3</sup> )
Lead	Quarterly	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>
Nitrogen Dioxide	Annual	0.05 ppm (100 µg/m <sup>3</sup> )	0.05 ppm (100 µg/m <sup>3</sup> )	0.05 ppm (100 µg/m <sup>3</sup> )
Ozone	1 hour 8 hour <sup>g</sup>	0.12 ppm (235 µg/m <sup>3</sup> ) 0.08 ppm (157 µg/m <sup>3</sup> )	0.12 ppm (235 µg/m <sup>3</sup> ) 0.08 ppm (157 µg/m <sup>3</sup> )	0.12 ppm (235 µg/m <sup>3</sup> ) No Standard
PM <sub>10</sub>	Annual 24-hour	50 µg/m <sup>3</sup> 150 µg/m <sup>3</sup>	50 µg/m <sup>3</sup> 150 µg/m <sup>3</sup>	50 µg/m <sup>3</sup> 150 µg/m <sup>3</sup>
PM <sub>2.5</sub>	Annual 24-hour	15 µg/m <sup>3</sup> 65 µg/m <sup>3</sup>	15 µg/m <sup>3</sup> 65 µg/m <sup>3</sup>	15 µg/m <sup>3</sup> 65 µg/m <sup>3</sup>
Total Suspended Particulates	Annual 24-hour	No standard No standard	No standard No standard	60 µg/m <sup>3</sup> 150 µg/m <sup>3</sup>
Sulfur Oxides (measured as SO <sub>2</sub> )	Annual 24-hour 3-hour 1-hour 1-hour <sup>f</sup>	0.03 ppm (80 µg/m <sup>3</sup> ) 0.14 ppm (365 µg/m <sup>3</sup> ) No standard No standard No standard	No standard No standard 0.50 ppm (1,300 µg/m <sup>3</sup> ) No standard No standard	0.02 ppm (55 µg/m <sup>3</sup> ) 0.10 ppm (265 µg/m <sup>3</sup> ) No standard 0.25 ppm (660 µg/m <sup>3</sup> ) 0.40 ppm (1,050 µg/m <sup>3</sup> )
PM <sub>10</sub> Particles with aerodynamic diameters less than or equal to a nominal 10 micrometers PM <sub>2.5</sub> Particles with aerodynamic diameters less than or equal to a nominal 2.5 micrometers a National and Washington state standards, other than those based on an annual or quarterly arithmetic mean, are not to be exceeded more than once per year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is less than or equal to one. b The NAAQS and Washington state standards are based on standard temperature and pressure of 25 degrees Celsius and 760 millimeters of mercury, respectively. Units of measurements are parts per million (ppm) and micrograms per cubic meter (µg/m <sup>3</sup> ). c National Primary Standards: The levels of air quality necessary to protect the public health with an adequate margin of safety. Each state must attain the primary standards no later than three years after the SIP is approved by the USEPA. d National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the state implementation plan is approved by the USEPA. e Not to be exceeded more than twice in seven consecutive days. f Not to be exceeded more than once per year throughout the state of Washington and never to be exceeded within the PSCAA region. g Eight hour ozone standard went into effect on September 16, 1997, but implementation is limited.				

Based on the requirements outlined in the USEPA general conformity rule published in 58 Federal Register 63214 (November 30, 1993) and codified at 40 CFR Part 93, Subpart B (for federal agencies), a conformity analysis is required to analyze whether the applicable criteria air pollutant emissions associated with the project equal or exceed the threshold emission limits that trigger the need to conduct a formal conformity determination. The intent of the conformity rule is to encourage long range planning by evaluating the air quality impacts from federal actions before the projects are undertaken. This rule establishes an elaborate process for analyzing and determining whether a proposed project in a nonattainment area conforms to the SIP and federal standards.

### 3.4.2 Regional Air Quality

The fundamental method by which the USEPA tracks compliance with the NAAQS is the designation of a particular region as “attainment” or “nonattainment”. Based on the NAAQS, each state is divided into three types of areas for each of the criteria pollutants. The areas are:

- Those areas that are in compliance with the NAAQS (attainment);
- Those areas that do not meet the ambient air quality standards (nonattainment); and
- Those areas where a determination of attainment/nonattainment cannot be made due to a lack of monitoring data (unclassifiable – treated as attainment until proven otherwise).

The USEPA classifies the air quality within an AQCR according to whether the concentration of criteria air pollutants in the atmosphere exceeds primary or secondary NAAQS. All areas within each AQCR are assigned a designation of attainment, nonattainment, unclassifiable attainment, or not designated attainment for each criteria air pollutant. An attainment designation indicates that the air quality within an area is as good as or better than the NAAQS. Nonattainment indicates that air quality within a specific geographical area exceeds applicable NAAQS. Unclassifiable and not designated indicates that the air quality cannot be or has not been classified on the basis of available information as meeting or not meeting the NAAQS and is therefore treated as attainment. Before a nonattainment area is eligible for reclassification to attainment status, the state must demonstrate compliance with NAAQS in the nonattainment area for three consecutive years and demonstrate, through extensive dispersion modeling, that attainment status can be maintained in the future even with community growth.

Generally, areas in violation of one or more of the NAAQS are designated nonattainment and must comply with stringent restrictions until all of the standards are met. In the case of O<sub>3</sub>, CO, and PM<sub>10</sub>, USEPA divides nonattainment areas into different categories, depending on the severity of the problem in each area. Each nonattainment category has a separate deadline for attainment and a different set of control requirements under the SIP.

McChord AFB is located in Pierce County within the Puget Sound Intrastate AQCR 229. This AQCR includes the Washington counties of King, Snohomish, Pierce, and Kitsap. The state of Washington has established seven separate local air pollution control authorities (APCA) responsible for enforcing federal, state, and local air pollution standards, laws, and regulations within the state. The state agency responsible for air quality within AQCR 229 is the Puget Sound Clean Air Agency (PSCAA). The boundaries of the PSCAA are the same as those for AQCR 229. The USEPA has designated the air quality within Pierce County as better than the NAAQS for SO<sub>2</sub> and NO<sub>2</sub>, unclassifiable for 8-hour O<sub>3</sub> and Pb; and a reclassification from nonattainment to maintenance attainment for PM<sub>10</sub>, 1-hour O<sub>3</sub>, and CO as of May 14, 2001, October 18, 2000, and November 15, 1990, respectively.

### 3.4.3 Baseline Air Emissions

An air emissions inventory is an estimate of total actual mass emissions of pollutants generated from a source or sources over a period of time, typically a year. The quantity of air pollutants is generally measured in pounds (lb) per year or tons per year (tpy). Accurate air emissions inventories are needed for estimating the relationship between emissions sources and air quality. Emission sources may be categorized as either mobile or stationary emission sources. Typical mobile emission sources at Air Force installations include aircraft, on- and off-road vehicles, and aerospace ground equipment. Stationary emission sources may include fuel storage and fueling operations, boilers, generators, industrial processes, and burning activities, among others.

Table 3-3 lists the baseline emissions inventory for McChord AFB and Table 3-4 lists the emissions inventory for the counties within AQCR 229.

Table 3-3. Baseline Emissions Inventory at McChord AFB

Criteria Air Pollutant	CO (tpy)	VOC (tpy)	SO <sub>x</sub> (tpy)	NO <sub>x</sub> (tpy)	PM <sub>10</sub> (tpy)
Stationary Emission Sources <sup>a</sup>	8.0	14.0	6.0	18.0	6.0
Mobile and Other Emission Sources <sup>b</sup>	1,079.2	170.5	26.8	591.1	18.9
Total Emissions	1,087.2	184.5	32.8	609.1	24.9
<sup>a</sup> USAF, 2003b; <sup>b</sup> USAF, 1997; tpy tons per year					

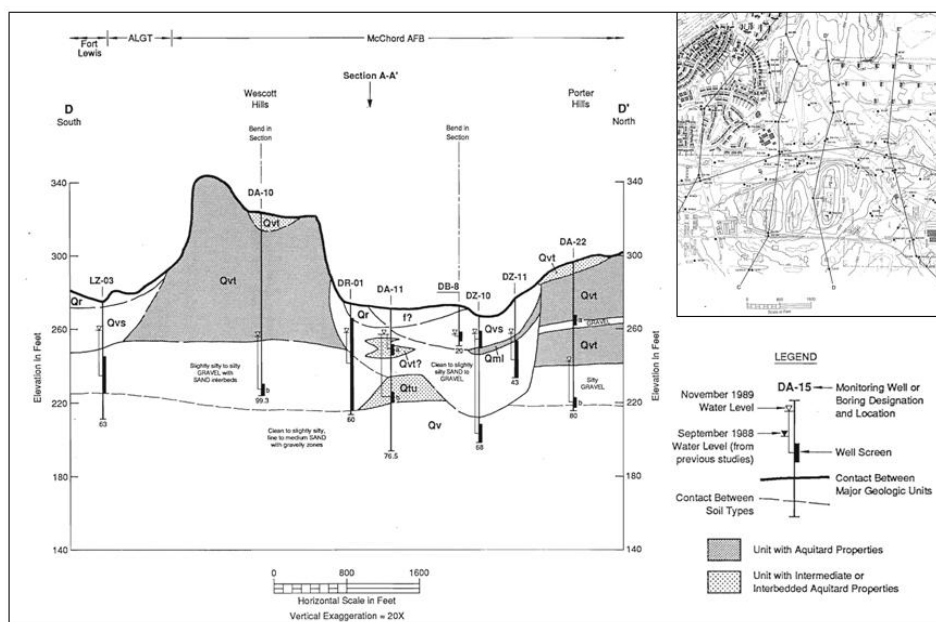
Table 3-4. Baseline Emissions Inventory, AQCR 229

Criteria Air Pollutant	CO <sup>a</sup> (tpy)	VOC <sup>a</sup> (tpy)	SO <sub>x</sub> <sup>a</sup> (tpy)	NO <sub>x</sub> <sup>a</sup> (tpy)	PM <sub>10</sub> <sup>b</sup> (tpy)
Totals	1,268,000	164,000	11,000	158,000	71,000
<sup>a</sup> PSCAA, 2003 Air Quality Data Summary, September 2004. Values are from calendar year 2002.					
<sup>b</sup> PSCAA, 2002 Air Quality Data Summary, January 2004. PSCAA no longer reports PM <sub>10</sub> emissions. Values are from calendar year 1999.					
tpy tons per year					

### 3.5 Geology and Soils

#### 3.5.1 Geologic Setting

McChord AFB lies on a broad upland drift plain in the southern part of the Puget Sound Basin. The upland separates the main body of Puget Sound on the west from a complex of old (Pleistocene Vashon) glaciation that ended about 12,000 years ago. The Vashon Drift immediately beneath the Base is 200 to 250 feet thick. The upper 10 to 50 feet of this drift is Vashon recessional outwash deposit. This deposit thins toward the north end of the Base and is called Steilacoom gravel. Beyond the gravel and the recessional outwash deposit is compact Vashon Till, which is 20 to 80 feet thick. The gravel, recessional outwash and till bury a sequence of Vashon advance outwash gravels. The Vashon Drift is separated from the lower 50- to 150- foot thick interglacial Kitsap Formation. The sequence of permeable sandy, gravelly glacial deposits and alternative low permeability non-glacial formation is repeated until bedrock is reached. The thickness of un lithified Pleistocene sediments beneath the Puget Sound Basin is generally in excess of 1,000 feet and reaches approximately 2,000 feet to bedrock beneath McChord AFB. The low relief surface slopes gently westward with maximum elevations decreasing from 700 feet on the east to 300 feet on the west (USAF, 2003). A generalized subsurface profile of geologic units found at the Westcott Hills parcel and surrounding area is shown on Figure 3-5.



Source: Ebasco, 1990

Figure 3-5. Generalized Subsurface Profile of Westcott Hills on McChord AFB

The Westcott Hills parcel is located in the Vashon Till geologic unit, which is considered to be relatively impermeable. The Vashon Till and ice contact deposits in the Vashon Stade-Fraser Glaciation (Vashon Drift) geologic unit is composed of dense lodgement till and loose ablation till typically composed of gravelly sandy silt to silty sandy gravel, and commonly interbedded with poorly sorted, silty outwash sands and gravels. This geologic unit is 5 to 100 feet in thickness and is laterally discontinuous (USAF, 2008b).

The average elevation of the Base is approximately 300 ft above mean sea level with the highest elevations in the Westcott and Porter Hills (360 feet) and depressions as low as 263 ft such as at the Milburn Wash (USAF, 2003).

### 3.5.2 Soils

Soils on McChord AFB consist mainly of glacial outwash, with Spanaway gravelly sandy loam the most common soil type. This soil is somewhat excessively drained, has a high rock content (typically 50 percent) and is found in nearly level to undulating terrain. Spanaway gravelly sandy loam developed in glacial outwash mixed in the upper part with volcanic ash. Grass and conifers are found in this soil type which is characterized by strong to slight acidity, moderately rapid permeability, low water availability capacity, slow surface water runoff, little erosion hazard, and an effective rooting depth of more than 4 feet. Other soil types on McChord AFB include Dupont muck (a very poorly drained, level, organic soil) and Everett gravelly sandy loam (somewhat excessively drained on nearly level to undulating terrain) (USAF, 2003). Carter and Emerson Lake are situated on areas containing Dupont muck. Landfill (debris) areas are also located on the Base, such as found on the southeastern portion of the Cascade Village housing area.

The Westcott Hills parcel is located on Everett Gravelly sandy loam (USAF, 2003), which extends over a large area on the western portion of the Base.

## 3.6 Water Resources

### 3.6.1 Surface Water

The highly permeable nature of surface soil on McChord AFB typically allows rapid infiltration of rainfall with little or no surface flow and only occasional, short-term accumulation of water in ponds and wetlands. These ponds and wetlands are located in isolated areas of low topography and not drained by streams.

McChord AFB contains two streams: Morey Creek flows into Morey Pond, which then flows over a dam and joins with Clover Creek. The combined creek (Clover Creek) passes through a 0.6-mile culvert beneath the Base runway and taxiway. Clover Creek has been channeled around the northern industrial area of the Base, and flows off-Bas along its original bed towards Steilacoom Lake approximately two miles downstream (USAF, 2003). American Lake, Gravelly Lake and Lake Steilacoom are west of McChord AFB, and Spanaway Lake is east of the Base.

Carter Lake, in the housing area on the west side of the Base, is formed as the result of surface water runoff. Emerson Lake, on the westernmost section of the main housing area, is located in the southern portion of Heartwood housing and extends into the American Lake Garden Tract. Water bodies are protected and managed in accordance with Air Force natural resources plans, policies and procedures.

### 3.6.2 Ground Water

Ground water on McChord AFB fluctuates considerably from season to season due to the relatively high annual rainfall and the high permeability of the soil. Ground water levels are between 10 to 40 feet below the surface. Water table elevation seasonal fluctuations are from 2 to 10 feet. The unconfined aquifer is predominantly northwest (USAF, 2003).

## 3.7 Biological Resources

### 3.7.1 Vegetation and Wildlife

**Vegetation.** The vegetation in the McChord AFB vicinity historically consisted of a combination of drought-tolerant prairie grasslands, oak woods, and ponderosa pine forests with some emergent marsh and forested wetlands. Idaho fescue grasslands and Garry oak stands colonized the area after the retreat of the Vashon glaciation. Garry oak is also known as Oregon white oak.

The remnant stands of ponderosa pine savannahs and oak woodlands are much reduced on McChord AFB today. A total of 105 Garry oak stands (covering 365 acres) and a single 7-acre ponderosa pine stand are found on the Base. The composition of vegetation has been changing since the 1800s from fire suppression, grazing and introduction of non-native species. Fire-susceptible plants such as Douglas fir and exotic species such as Scot's broom have begun to dominate the vegetation on the Base (USAF, 2003).

The native forested areas on McChord AFB, Garry oak habitats and ponderosa pine habitats have been reduced through urbanization and development. Remaining forested areas on the Base serve as scenic buffers and greenbelt areas that augment the military mission. Of particular importance in forest management is the retention of snags or standing dead trees to serve as wildlife habitat for nesting or food source. During tree maintenance and removal, storm damage and construction, the Air Force enables the limited sale of firewood. McChord AFB also participates in the Tree City USA program sponsored by the National Arbor Day Foundation, which recognizes communities that effectively manage public tree resources.

Forest stands on the Base have been inventoried and are managed for long-term continuity of this resource. While Garry oak stands are typically found within the housing area (i.e., along the eastern perimeter of the Carter Lake Parcel 32 and in the Heartwood area), three of the proposed housing privatization land parcels on McChord AFB include areas that are within two designated forest management stands as described in Table 3-5.

**Table 3-5. Forest Vegetation at Proposed Privatization Sites on McChord AFB**

Parcel	Forest Management Stand No.	Total Acres	Description
34 (Cascade Village)	24	120	The eastern section of this Parcel 34 near the recreational area is adjacent to Garry Oak stands (Garry oak/sedge hook violet community type) beyond the perimeter walkway
39 (Undeveloped Parcel/ Water Infrastructure)	24	120	Wooded areas on Parcel 39 contain stands of Douglas fir and Garry Oak.
40 (Westcott Hills)	24.91	75	Primarily Douglas fir is found on this stand.

Forest Management Stand No. 24, comprising 120 acres between the central housing and munitions storage areas of McChord AFB, is a diverse stand containing mostly uneven-aged Douglas fir. Large western red cedar, areas of young Garry oak, some black cottonwood (*Populus trichocarpa*) and two native subspecies of lodgepole pine are present. This stand includes several small upland wetlands. Forest Stand 24 was cut in a 1973 sale. Some locations contain significant amounts of hardwood understorey. Some Douglas fir treed adjacent to Lincoln Boulevard were killed by bark beetles during the early 1990s. This stand serves as a passive recreation area and greenbelt-buffer zone for military family housing area. This stand should be managed as a natural area (long-term). Selective individual sanitation/salvage cuts should be done for infested, diseased and hazard trees, when necessary (long-term) (USAF, 2003). The portion of Forest Management Stand No. 24 located adjacent to Cascade Village (Parcel 34) is a Priority Stand for Management.

Forest Management Stand No. 25, comprising 75 acres south of the golf course, is comprised primarily of Douglas fir. Vine maple (*Acer circinatum*) and big leaf maple (*Acer macrophyllum*) grow profusely in moist upland locations. The Horseman's Club maintains approximately five acres of riding trails throughout the stand. Forest Management Stand No. 25 supports a variety of wildlife including deer, black bear, coyote and rabbits. Base personnel use the trails within this stand for hiking. This stand should be managed as a natural area (long-term). Selective individual sanitation/salvage cuts should be done for infested, diseased and hazard trees, when necessary (long-term) (USAF, 2003). The Westcott Hills site (Parcel 40) is located entirely within Forest Management Stand No. 25.

**Wildlife.** McChord AFB contains approximately 1,325 acres of land for fish and wildlife management. The Base offers habitat for over 131 different birds, 19 mammals (including black bear and black-tailed deer), 12 fish, 16 butterflies and 45 moth species. In addition, six species of amphibians and four species of reptiles have been documented on the Base (USAF, 2003).

McChord AFB is located within the generalized western migratory route for neotropical migratory birds. More than half of all bird species nesting in the United States are classified as neotropical migratory birds. This group includes many waterfowl, birds of prey, shorebirds and songbirds (USAF, 1995). Approximately 57 percent of the bird species identified on McChord AFB are neotropical migrant land birds (USAF, 2003).

At McChord AFB, 24 species of birds and five mammals use snags as habitat in forested areas. As part of its forest conservation program, the Air Force manages the retention, removal and density of snags on McChord AFB. Wildlife on the proposed sites would be expected to include a variety of birds and mammals (such as black-tailed deer, cottontail rabbit, coyote, Douglas squirrel, Eastern gray squirrel, raccoon, striped skunk and Virginia opossum). The number of species would be limited due to human presence associated with housing activities and the absence of a water source on the site (e.g., a greater number of species would be expected near wetland areas).

In 1990, the Air Force was signatory to a Memorandum of Understanding (MOU) for establishment of a nationwide watchable wildlife program to promote enhanced opportunities to experience wildlife and build support for conservation and management of wildlife. The MOU provided a cooperative framework among 13 public and private land management and conservation organization to develop watchable wildlife programs of federal, state and private lands. Parcel 40 is located within the 100-acre Westcott Hills natural area that is one of five Watchable Wildlife Areas designated on McChord AFB.

Three of the sites proposed for privatization are located in or adjacent to an oak or pine forest community that supports a diversity of wildlife species. The Garry Oak stands associated with the recreational area at Cascade Village are considered a sensitive habitat for wildlife.

### 3.7.2 Threatened, Endangered, and Special Status Species

Special status and species of concern that may be found on McChord AFB are shown on Table 3-6. A total of 25 species that may potentially occur on McChord AFB have special status by either or both the Federal (U.S. Fish and Wildlife Service) and state (Washington Department of Fish and Wildlife) agency. Species with a designation include 15 birds, three mammals, one amphibian, three butterflies and three plants (USAF, 2008).

Suitable habitat for most of the listed animal species at McChord AFB would not be expected to be found on the sites for proposed housing privatization. Species that may occur on the Base are as follows:

- Wintering bald eagles, a sensitive species, may occur from October 31 to March 31 in the vicinity of the Base. An incidental species that may fly over the Base, the nearest known bald eagle nest is found at Spanaway Marsh southeast of McChord AFB.
- The Western gray squirrel (a Federal threatened and state Species of Concern) has been observed on McChord AFB in the Porter Hills area, at Morey Pond, at the Ammo Area, and along the Perimeter Road (USAF, 2000). The species may breed at McChord AFB and prefers oak woodland in proximity to wetlands or other water source (USAF, 1996). In western Washington, Western gray squirrels are associated with Oregon white oak woodlands and typically occur in areas with a vegetation mosaic of oak woodland, open oak savannah or prairie, oak-conifer-closed canopy forest, wetland, and riparian corridors. In addition, suitable squirrel habitat must include mature oaks capable of producing large acorn crops, year-round food sources (e.g., Ponderosa pine mast, conifer seeds, nuts, fleshy fruits, fungi), cavity and nest trees, and a contiguous tree canopy allowing for arboreal travel between habitat patches (Pierce County, 1997). Western gray squirrels were observed nesting in kestrel boxes near Perimeter Road in 1996. The species was also observed in the oak and pine community types associated with the Skeet Range wetland northeast of Perimeter Road. While none of the proposed housing privatization parcels are considered optimal habitat for the species due to the absence of Oregon white oak and the aforementioned vegetation mosaic, there have been no recent biological surveys for this species at Parcels 39 or 40 (Westcott Hills).

While one of the three listed plant species on McChord AFB would not be expected to occur on any of the proposed sites for housing privatization, there have not been any recent biological surveys of Parcels 39 or 40 (Westcott Hills):

- Water howellia has been found on McChord AFB in the Bensten wetland. This species would not be expected at any of the proposed privatization sites due to the absence of wetland conditions needed to support the species.

**Table 3-6. Federal and State Listed Species and Species of Concern on McChord AFB**

	Common Name	Scientific Name	State Status	Federal Status
<b>Birds</b>				
1	Bald eagle	<i>Haliaeetus leucocephalus</i>	Sensitive	Species of Concern
2	Peregrine falcon	<i>Falco peregrinus</i>	Sensitive	Species of Concern
3	Olive-sided flycatcher	<i>Contopus borealis</i>	None	Species of Concern
4	Loggerhead shrike	<i>Lanius ludovicianus</i>	Candidate	None
5	Merlin	<i>Falco columbarius</i>	Candidate	None
6	Willow flycatcher	<i>Empidonax traillii</i>	None	Species of Concern
7	Oregon vesper sparrow	<i>Pooecetes gramineus affinis</i>	Candidate	Species of Concern
8	Pileated woodpecker	<i>Dryocopus pileatus</i>	Candidate	None
9	Purple martin	<i>Progne subis</i>	Candidate	None
10	Streaked homed lark	<i>Eremophila alpestris strigata</i>	Endangered	Candidate
11	Vaux's swift	<i>Chaetura vauxi</i>	Candidate	None
12	Western bluebird	<i>Sialia mexicana</i>	Monitor	None
13	Osprey	<i>Pandion haliaetus</i>	Monitor	None
14	Long-billed curlew	<i>Numenius americanus</i>	None	Species of Concern
15	Great blue heron	<i>Ardea herodias</i>	Monitor	None
<b>Mammals</b>				
16	Western gray squirrel	<i>Sciurus griseus griseus</i>	Threatened	Species of Concern
17	Long-eared myotis (bat)	<i>Myotis evotis</i>	Monitor	Species of Concern
18	Long-legged myotis (bat)	<i>Myotis volans</i>	Monitor	Species of Concern
<b>Amphibians</b>				
19	Red-legged frog	<i>Rana aurora</i>	None	Species of Concern
<b>Butterflies</b>				
20	Valley (Zerene) silverspot	<i>Speyeria zerene bremnerii</i>	Candidate	Species of Concern
21	Great spangled fritillary	<i>Speyeria cybele pugetensis</i>	Monitor	None
22	Purplish copper	<i>Lycaena helloides</i>	Monitor	None
<b>Plants</b>				
23	White-top aster	<i>Aster curtus</i>	Sensitive	Species of Concern
24	Water howellia	<i>Howellia aquatilis</i>	Threatened	Threatened
25	Torrey's peavine	<i>Lathyrus torreyi</i>	Threatened	Species of Concern
<p>Source: USAF, 2008<sup>a</sup></p> <p>Species of ashingt: (1) An informal term that refers to ash species that the U.S. Fish and Wildlife believes might be in need of concentrated conservation actions. Such conservation actions vary depending on the health of the populations and degree and types of ashin. At one extreme, there may only need to be periodic monitoring of populations and ashin to the species and its habitat. At the other extreme, a species may need to be listed ash Federal threatened or endangered species. Species of ashingt receive no legal protection and the use of the term does not necessarily mean that the species will eventually be proposed for listing ash threatened or endangered species. (2) State Species of ashingt includes ash species listed as by the ashington Department of Fish and Wildlife as Endangered, Threatened, Sensitive or Candidate, as as species listed or proposed for listing by the USFWS.</p> <p>Monitor: Species that are being monitored by the ashington Department of Fish and Wildlife.</p>				

- White-top aster occurs on open prairies, and is a remnant element of the Puget lowland grasslands. The species has been found on McChord AFB within degraded prairie habitat and/or former oak savanna habitat. White-top aster is found at and adjacent to the Garry oak and pine communities near the Skeet Range wetland. This species has been documented in two areas more than 2,500 feet from Emerson Lake wetlands (Golder Associates, 2008).

- Formerly presumed extinct, Washington's only known occurrence of Torrey's peavine was found at four locations on McChord AFB within the Porter Hills area in a Douglas fir woodland area. The total population size is less than 100 individuals (USAF, 2003). This species has been documented in an area more than 1,000 feet from Carter Lake wetlands (Golder Associates, 2008).

### 3.7.3 Wetlands

A total of 34 wetlands encompassing 137.48 acres are found on McChord AFB. Wetlands are protected and managed in accordance with Air Force natural resources plans, policies and procedures. Wetlands are found dispersed primarily throughout the western and southern portions of McChord AFB. Most of the wetlands on the Base are groundwater-influenced systems. Seasonal inundation commonly is greater than several feet in depth and influences the zonation of wetland vegetation communities (USAF 2003).

In June 2008, a wetland delineation was conducted for the five wetlands within the proposed privatization boundaries. The findings of this delineation indicate that a total of 6.58 acres of wetlands have been identified within the conveyance area for the proposed housing privatization. Wetlands were rated based on wetland functions (water quality, hydrological and habitat), sensitivity to disturbance, rarity and replaceability. The resultant rating was used to determine the width of the recommended wetland buffer zone. A summary of wetland areas is provided in Table 3-7.

**Table 3-7. Wetlands at Proposed Privatization Sites on McChord AFB**

Parcel	Wetland	Wetland Description	Size (acres)
32	Carter Lake	Palustrine, scrub-shrub/open water	3.88
32 and 36	Clark (formerly Olympic Grove)	Palustrine, forested/emergent wetland	0.16
39 (buffer only)	Tank (formerly Porter Hills)	Palustrine, forested/emergent wetland	0.59
35	Emerson Lake (portion within McChord AFB)	Palustrine, scrub-shrub/emergent	1.91
36	Walnut (formerly Clark-Walnut)	Palustrine, forested walnut	0.04

Source: Golder Associates, 2008

The Base management goal is to maintain the integrity of wetlands, particularly their associated plant species. While most wetlands are not actively managed and allowed to function without intervention, development in wetlands is prohibited. The Base wetland management actions and objectives include:

- controlling the spread of invasive, exotic species (particularly Scot's broom);
- maintaining and creating snags near wetlands;
- curtailing tree cutting near wetlands if biotic conditions are affected; and,
- monitoring of critical wetland areas.

## 3.8 Cultural Resources

Cultural resources include prehistoric and historical archaeological sites, buildings, structures, districts, artifacts, objects, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, or religious purposes. Pursuant to Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and its implementing regulations at 36 CFR 800, federal agencies must take into consideration the potential effect of an undertaking on "historic properties," which refers to cultural resources listed in, or eligible for inclusion in, the National Register of Historic Places (NRHP). Sites not yet evaluated are considered potentially eligible for inclusion in the NRHP and, as such, are afforded the same regulatory consideration as nominated properties.

Numerous laws and regulations require federal agencies consider the effects of a Proposed Action on cultural resources. These laws and regulations stipulate a process for compliance, define the responsibilities of the federal agency proposing the action, and prescribe the relationship between other involved agencies (e.g., State Offices of Historic Preservation, the Advisory Council on Historic Preservation).

Only those potential historic properties determined to be significant under cultural resource legislation are subject to protection or consideration by a federal agency. The quality of significance is considered in terms of applicability of the NRHP criteria. Significant cultural resources, either prehistoric or historic in age, are referred to as "historic properties."

Cultural resources on Air Force installations are managed in accordance with environmental laws that include: AFI 32-7065, *Cultural Resources Management*; 32 CFR 989, *Air Force Environmental Impact Analysis Process*; Executive Order 11593 of 1971; National Historic Preservation Act of 1966, as amended; Archaeological and Historic Preservation Act (AHPA) of 1974 (Public Law [PL] 93-291); the Archaeological Resources Protection Act (ARPA) of 1979 (PL 96-95); the American Indian Religious Freedom Act (AIRFA) of 1978 (PL 95-341); and, the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (PL 101-601). In addition, any proposed undertaking must comply with the State Historic Preservation Office (SHPO) guidelines for the state of Washington.

For this analysis, the Region of Influence (ROI) is synonymous with the Area of Potential Effect (APE), as defined by the NHPA. The ROI for the analysis of cultural resources is defined as the area that would be subject to ground disturbance as a result of housing privatization on McChord AFB.

The identification of cultural resources potentially impacted by the Proposed Action was accomplished by the Fort Lewis Cultural Resources Office and through a review of the 1998 McChord AFB Cultural Resources Management Plan (CRMP) (USAF 1998).

### 3.8.1 Archaeological Resources

Archaeological resources are prehistoric or historic places where human activity has measurably altered the earth or left deposits of physical remains. Archaeological resources may include some surface deposits and below ground (subsurface) deposits. Prehistoric archaeological resources may include village sites, campsites, lithic scatters, burials, hearths (or hearth features), processing sites, caves, and rock shelters. Historical archaeological resources may include farmsteads, roads, privies, trash deposits and/or middens.

Prior surveys of the Base and areas within the APE for proposed housing privatization at McChord AFB have indicated that the APE is in the lowest zone for prehistoric sensitivity based partly on distance from water and that the APE was centrally located in historically forested areas (U.S. Army, 2008). In 1994, Argonne National Laboratory undertook a comprehensive evaluation of prehistoric and historic archaeological resources at McChord AFB, including the northern half of Parcel 39 and the entire Parcel 40. A shovel test survey of the hill ridge line in the Westcott Hills parcel was conducted. No archaeological sites or isolated finds were identified in the undeveloped APE (U.S. Army, 2008).

### 3.8.2 Historical Resources

Historical resources include buildings and structures, and other physical remains of historic significance, that are present above the ground. Historical resources date from the period of initial European contact in this area (*circa* A.D. 1770) and extend into the present. The historical resources may include houses, homesteads, farmsteads (and associated support structures or buildings), cabins, forts, schools, bridges, dams, logging sites, military facilities, structures, or buildings, and items of a similar nature.

The McChord Field Historic District is comprised of 39 contributing structures and 21 non-contributing structures (USAF, 1998). The District is NRHP-eligible under Criterion A for its association with the training of hundreds of pilots between 1939 and 1941 as part of the pre-World War II military buildup. The District is also eligible under Criterion C for its grouping of pre-1947 buildings that are located within the original Base area that shares similar design and construction characteristics. In 2008, the Air Force submitted a NRHP nomination package for the McChord Field Historic District.

The Bricks (also known as the Historic Row House Complex) are designated as Contributing Buildings to the historic district. The Bricks include six Tudor Revival style, five-family row houses built in 1938-39 for Officers and Non-Commissioned Officers (Bldgs 400, 420, 600, 601, 602 and 603); six associated detached five-car garages built ca. 1941 and 1952 (Bldgs 401, 421, 613, 620, 621 and 622); two electrical substations built ca. 1939-1942; and, associated landscape features.

The 1998 CRMP for McChord AFB identifies 26 additional potentially eligible historic properties located outside of the District, but within the boundaries of McChord AFB. These 26 structures have since been determined by the Washington SHPO to be ineligible for the NRHP (Grenko, 2003). With the exception of

The Bricks, there are no known historic structures on the proposed sites for housing privatization on McChord AFB.

Parcels 32 and 39 contain water infrastructure that is potentially eligible for listing on the NRHP. Based on age of these structures, the water wells, well houses and water storage towers are eligible for evaluation as historic structures.

**Table 3-8. Water Infrastructure Buildings to Become Potentially Eligible for NRHP Listing**

Parcel	Bldg	Description	Year of Construction	Age
39	5001	Water Well	1958	50
39	82045	Water Tower	1958	50
39	5003	Water Well	1959	49
39	82046	Water Tower	1959	49
32	3410	Water Well	1958	50

Source: USAF, 1998

### 3.8.3 Native American Interests

Two Native American groups, the Puyallup Tribe and the Nisqually Tribe, have been contacted in the past about cultural resources on McChord AFB. No Native American concerns are known to exist on McChord AFB (USAF, 1998).

## 3.9 Environmental Management

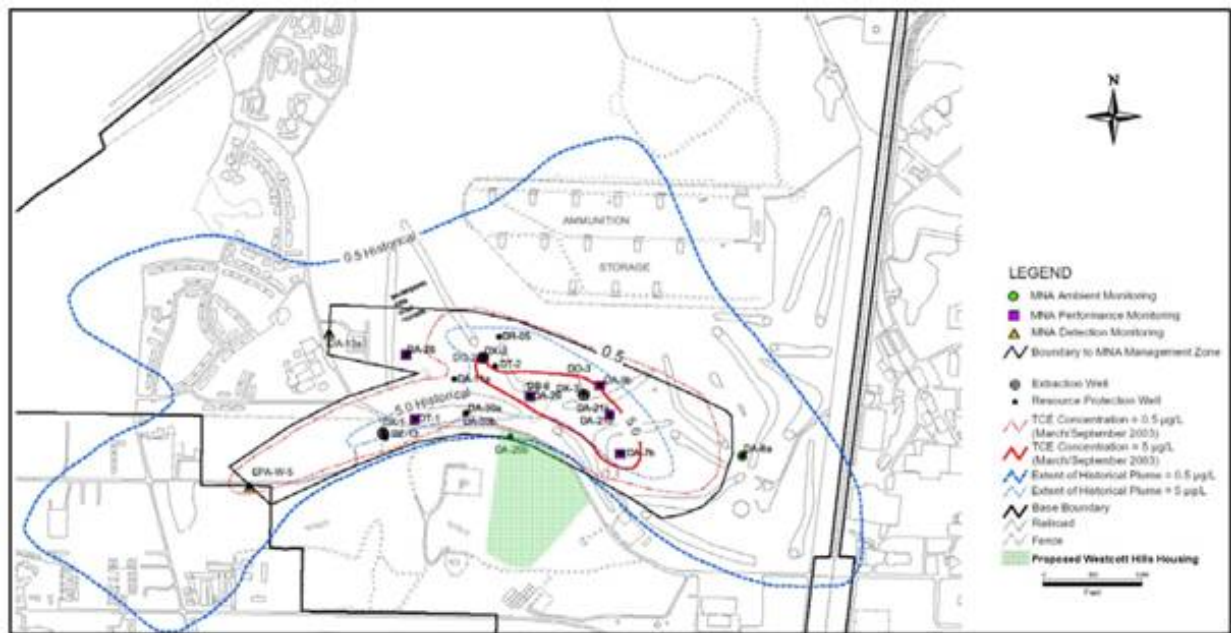
This subchapter focuses on existing Environmental Restoration Program (ERP) activities on McChord AFB that could be potentially affected by the Proposed Action. The ERP, formerly known as the Installation Restoration Program (IRP), is a subcomponent of the Defense Environmental Restoration Program that became law under the Superfund Amendments and Reauthorization Act (SARA) of 1986. The ERP requires each DoD installation to identify, investigate, and remediate environmental contamination that occurred prior to 1984. The ERP is the DoD program for implementing the requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The ERP was developed to:

- Identify and evaluate hazardous material disposal sites;
- Control the migration of hazardous contaminants;
- Control hazards to health or welfare that may have resulted from past disposal operations; and
- Clean up on a "worst first" basis, contamination from past hazardous waste sites at active military installations, government owned/contractor operated facilities, and used DoD sites.

The ERP follows the CERCLA process for potential hazardous sites.

Historical industrial activities conducted at McChord AFB have resulted in the contamination of several areas. As part of its proactive commitment in restoring and protecting the environment, McChord AFB is conducting an environmental cleanup program to identify, investigate, and remediate identified contaminated sites. The Base has a total of 65 ERP sites, all of which have no further response action planned (NFRAP), requiring no further response actions beyond those that are currently underway. ERP (or IRP) sites in the vicinity of the housing areas are shown on Figure 3-2.

The Base has one site on the National Priorities List (NPL): the Area D/American Lake Garden Tract (ALGT). The trichloroethene (TCE) and dichloroethene (DCE) contamination found in the shallow groundwater beneath a small portion of the residential area of the American Lake Garden Tract site was found to have originated from an inactive landfill in Area D of the Base. The contaminated groundwater was treated and a drinking water system was piped in to the area. A pump-and-treat program using granulated activated charcoal, combined with long-term monitoring, is ongoing to ensure effectiveness of the cleanup. The TCE plume continues to shrink as a result of the pump-and-treat program. Two TCE monitoring wells (DA-8A and DA-8B) are located east of the Westcott Hills parcel, directly south of the military working dog area. Other monitoring wells associated with ongoing investigations of subsurface contamination are present on McChord AFB. The historical and current extent of the TCE plume of Area D/ALGT site is shown on Figure 3-6.



Source: USAF, 2007

**Figure 3-6. Extent of TCE Plume at Area D/ALGT Site**

Parcel 34 of the proposed privatization area contains historic Landfill No. 4 beneath the existing recreational fields adjacent to existing Cascade Village housing. Landfill No. 4 is thought to be a decades-old mixed waste landfill containing domestic, construction and hazardous discarded materials. This site was examined during the Environmental Restoration Program and found not to be contaminating ground water at the time of the investigation. The surface of the landfill is suitable for passive recreational use, such as the existing recreational fields.

### 3.10 Hazardous Substances

#### 3.10.1 Hazardous Materials

Hazardous materials are those substances defined by CERCLA (42 USC Section 9601, *et seq.*), as amended by the Superfund Amendments and Reauthorization Act (40 CFR 300-372), and the Toxic Substances Control Act (15 USC Section 2601, *et seq.*). The Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (RCRA) (42 USC 6901, *et seq.*), that was further amended by the Hazardous and Solid Waste Amendments, defines hazardous wastes. In general, both hazardous materials and wastes include substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, may present substantial danger to public health or welfare or to the environment when released or otherwise improperly managed.

Hazardous materials management at Air Force installations is established primarily by Air Force Instruction (AFI) 32-7086, *Hazardous Materials Management*. The AFI incorporates the requirements of all federal regulations, other AFIs, and DoD Directives (DoDD), for reduction of hazardous material uses and purchases.

The purchase and use of hazardous materials on McChord AFB must be authorized by the base's Hazardous Materials Management Plan (HMMP) established by AFI 32-7086, *Hazardous Materials Management*. As part of this program, the base operates a hazardous materials pharmacy. All hazardous materials enter the base through the pharmacy. Base functions request the hazardous material and quantity from the base pharmacy and the material is delivered to or picked up by the requesting function. No hazardous material may be used until it is entered into the Environmental Management Information System and approved for use. Under this system, the hazardous material pharmacy personnel maintain positive records for the location of the containers, from issue to return and ultimate disposal. The HMMP applies to all activities, including contractors.

### 3.10.2 Hazardous Waste

Unless otherwise exempted by CERCLA regulations, Resource Conservation and Recovery Act (RCRA), Subtitle C (40 CFR Parts 260 through 279) regulations are administered by the USEPA and are applicable to the management of hazardous wastes. Hazardous waste must be handled, stored, transported, disposed, or recycled in accordance with these regulations. Hazardous waste generation from housing privatization would be limited to household hazardous wastes and some universal wastes (e.g., batteries) that are currently managed by the Air Force.

### 3.10.3 Pollution Prevention Program

The Air Force has taken a proactive and dynamic role in developing a pollution prevention (P2) program to implement the regulatory mandates in the Pollution Prevention Act of 1990; Executive Order (E.O.) 12856 Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements; E.O. 12873 Federal Acquisition, Recycling, and Waste Prevention; and E.O. 12902 Energy Efficiency and Water Conservation at Federal Facilities. The Air Force P2 program incorporates the following principles in priority order:

- Generation of hazardous substances, pollutants, or contaminants will be reduced or eliminated at the source whenever feasible (source reduction).
- Pollution that cannot be prevented will be recycled in an environmentally safe manner.
- Disposal, or other releases to the environment, will be employed only as a last resort and will be conducted in an environmentally safe manner, according to regulatory guidance.

AFI 32-7080, dated 12 May 1994, provides the directive requirements for the Air Force P2 program. AFI 32-7080 incorporates by reference applicable federal, DoD, and Air Force level regulations and directives for pollution prevention. Each installation incorporates the requirements of AFI 32-7080 into a Pollution Prevention Management Action Plan (P2 MAP). The P2 MAPs are based on recurring opportunity assessments designed to continually evaluate an installation's success in achieving pollution prevention at the highest level in the hierarchy of action. The P2 MAP incorporates management strategies for meeting elimination of ODSs, EPA 17 industrial toxics, hazardous waste, solid waste, recyclable materials, and energy conservation.

The Air Force has prepared a Compliance Assurance and Pollution Prevention Management Plan for McChord AFB to assist in ensuring compliance with P2 requirements. Pollution prevention on McChord AFB is managed by 62 CES/CEV on McChord AFB.

### 3.10.4 Asbestos

Asbestos is regulated by the USEPA with the authority promulgated under the Occupational Safety and Health Act (OSHA), 29 U.S.C. §§ 669 et seq. Emissions of asbestos fibers to ambient air are regulated under Section 112 of the CAA. In accordance with Section 112 of the CAA, the USEPA established National Emissions Standards for Hazardous Air Pollutants (NESHAP) to protect the public. Asbestos was one of the first hazardous air pollutants regulated under Section 112 of the CAA. On March 31, 1971, the USEPA identified asbestos as a hazardous pollutant, and on April 6, 1973, the USEPA first promulgated the Asbestos NESHAP in 40 C.F.R. Part 61. In 1990, a revised NESHAP regulation was promulgated by the USEPA.

The Asbestos NESHAP regulations protect the public by minimizing the release of asbestos fibers during activities involving the processing, handling, and disposal of asbestos-containing material. Accordingly, the Asbestos NESHAP specifies work practices to be followed during demolitions and renovations of all structures, installations, and buildings (excluding residential buildings that have four or fewer dwelling units). In addition, the regulations require the owner of the building and/or the contractor to notify applicable State and local agencies and/or the USEPA Regional Offices before all demolitions, or before renovations of buildings that contain a certain threshold amount of asbestos.

The Federal government has developed several laws and regulations designed to govern the use of asbestos and better protect the public. In 1986, the Asbestos Hazard Emergency Response Act (AHERA) was signed into law as Title II of the Toxic Substance Control Act (TSCA).

Asbestos management at Air Force installations is established in AFI 32-1052, *Facility Asbestos Management*. AFI 32-1052 incorporates by reference applicable requirements of 29 C.F.R. 669 et seq., 29 C.F.R. 1910.1025, 29 C.F.R. 1926.58, 40 C.F.R. 61.140, Section 112 of the CAA, and other applicable

AFIs and DoDDs. AFI 32-1052 requires installations to develop an asbestos management plan for the purposes of maintaining a permanent record of the current status and condition of all ACM in the installation facility inventory and documenting all asbestos management efforts. In addition, the instruction requires installations to develop an asbestos operating plan that details how the installation will conduct asbestos-related projects.

Olympic Grove, Parcel 39 and Parcel 40 are the only subject areas without asbestos-containing material (ACM) concerns. Units in the Command Circle, The Bricks, Carter Lake, Cascade Village and Heartwood housing units may contain ACM. Some units where whole-house renovations have been performed after 1982 are less likely to contain ACM. Based on the use of the facility, ACM is not suspected to be present at the sewage lift station or within the storm water drainage easement.

### 3.10.5 Lead-Based Paint

The Residential Lead-Based Paint Hazard Reduction Act of 1992, Subtitle B, Section 408 (commonly called Title X), was passed by Congress on October 28, 1992 and regulates the use and disposal of lead-based paint at federal facilities. Federal agencies are required to comply with all applicable federal, state, interstate, and local laws relating to lead-based paint activities and hazards.

Management of lead-based paint (LBP) at Air Force installations is established in the Air Force policy and guidance on lead-based paint in facilities. The policy incorporates by reference the requirements of 29 C.F.R. 1910.1025, 29 C.F.R. 1926, 40 C.F.R. 50.12, 40 C.F.R. 240 through 280, the CAA, Public Law 102-550, and other applicable federal regulations. This policy requires each installation to develop and implement a facility management plan for identifying, evaluating, managing, and abating lead-based paint hazards.

While the manufacture of LBP was prohibited in 1977, LBP on the Base is managed in accordance with the McChord AFB Lead-Based Paint Management Plan. The objective of the plan is to minimize or eliminate exposure of the Base population to the possible detrimental effects of lead, especially within military family housing.

While conducting the housing community profile in 2002, lead-based paint tests were performed. Several units were found to contain LBP. The following building components were found to be positive for LBP: baseboard heaters, interior doors and door frames, interior door jambs, window sills, carport walls and columns, exterior fascia, exterior wood trim, exterior wood siding, and exterior fencing and sheds. Several units have had whole-house renovations performed after 1977 and are not expected to contain LBP.

LBP may be present at the Command Circle, The Bricks, Cascade Village, Carter Lake and Heartwood housing areas. Units that have had whole-house renovations after 1977, generally have a lower likelihood for the presence of LBP. Given the poor paint condition found at some Heartwood and Carter Lake units, the potential for lead in the soil exists.

Olympic Grove housing units were built after 1977. The likelihood of LBP in these units is low. Parcels 39 and 40 are unimproved parcels which generally have minimal potential for LBP. Based on the age of construction, the building at the sewage lift station was likely painted with some lead-based paint. This building has since been retrofitted and repainted over the years.

### 3.10.6 Pesticides

Pesticides, herbicides, rodenticides and fungicides have been and are used for the purpose of controlling pests (unwanted birds from the flightline, insects and rodents) and maintaining landscaped areas within the housing area on McChord AFB. Pest control responsibilities on the Base are handled by the Base Entomology Shop. Pest management and control procedures are conducted in accordance with the Base Pest Management Plan which is based on AFI 32-1032, *Pest Management Program*. In accordance with the Pest Management Plan, minimal application of herbicides has been performed at the housing areas. When these types of chemicals have been used, their application has been conducted in accordance with manufacturer's specifications, and has been applied by personnel properly trained in their use as required by the plan. Past bulk storage of pesticides, herbicides, and other similar chemicals is not expected within the housing areas. Soil contamination from household herbicide and pesticide use may be present in housing areas although these sites were not used for past agricultural purposes. Pesticides that are now banned have been applied at the McChord AFB housing areas as long as 50 years ago when they were in common use.

### 3.10.7 Radon

The USEPA has categorized Pierce County as Zone 3 for radon. Zone 3 is for areas with indoor average radon levels of less than 2 picoCuries per liter (pCi/l). The current USEPA recommended action level (RAL) for radon is 4 pCi/l.

In 1992, McChord AFB conducted a year-long Radon Assessment and Mitigation Program (RAMP) Detailed Assessment Survey of various structures throughout the Base. Approximately 1175 samples were taken. Seventy-nine (79) housing units had slightly elevated radon levels. Three of the units, 3312 Willow, 1321 Command Circle and 1322 Command Circle, had radon levels above the EPA guideline of 4 picoCuries per liter (pCi/l) of air. Vents and fans were installed in all 79 housing units with elevated radon levels to reduce the radon levels.

In 1996, Bioenvironmental Engineering performed follow-up radon gas sampling. All homes were found to be within the recommended EPA guideline of having radon levels less than 4 pCi/l (USAF 1996).

### 3.10.8 Ordnance

Based on available documents, historical uses of the subject sites, and interviews with knowledgeable personnel, ordnance is not suspected to have been used at the subject housing areas. There is no indication that the subject housing areas or the off-Base properties to be privatized were previously used as training ranges where unexploded ordnance might have been used. Evidence of ordnance was not observed during site reconnaissance.

### 3.10.9 Polychlorinated Biphenyls

In order for an installation to be classified as polychlorinated biphenyl (PCB)-free by the Air Force, the Air Force must certify that all electrical equipment, with the exception of mission-critical equipment, containing equal to or greater than 50 parts per million (ppm) of PCB has been removed. In order to comply with regulations, dielectric fluid samples were collected and analyzed from approximately 1985 through 1997 to assess whether the fluids contained PCBs. All the PCB equipment and transformers at McChord AFB have been replaced with non-PCB equipment (USAF, 2003a).

According to Base personnel, McChord AFB has been classified as PCB-free by the EPA (Region X). This classification indicates that all electrical equipment, containing equal to or greater than 50 parts per million (ppm) of PCBs has been removed from the Base. Obvious stains and/or leaks were not observed around concrete pad mounted electrical transformers in the housing areas.

Ballasts normally associated with fluorescent lights in some of the housing units may contain PCBs. Any ballast found to contain PCBs is collected and properly disposed of as a hazardous waste in accordance with Washington State Law. Obvious stains and/or leaks were not observed in the fluorescent light fixtures.

## 3.11 Utilities and Infrastructure

This subchapter focuses on transportation systems and solid waste, which are the resource areas potentially affected by the Proposed Action.

### 3.11.1 Transportation Systems

Vehicular traffic enters and exits McChord AFB primarily through four of the six gates:

- Main Gate - located on Bridgeport Way SW near McChord Drive;
- North Gate - located on South Tacoma Way near 112th Street;
- Housing Gate - located on Woodbrook Road just south of Interstate 5;
- East Gate - located on Military Road near Perimeter Road;
- South Gate – located off Barnes Boulevard to provide access onto Perimeter Road; and,
- Commercial Gate – located along Perimeter Road and used by commercial vehicles only.

The Main Gate accommodates the majority of installation traffic and is open 24 hours a day. The North Gate is for emergency use only. The East Gate is closed permanently and has been replaced by the South Gate which is open during peak traffic hours and may experience high volumes during the early morning commuter arrival, over lunchtime, and at the end of the workday. The Housing Gate primarily

serves the Base residential area and has varying peak hour characteristics. The Main Gate has two inbound and two outbound lanes at the gate. All other gates have one inbound and one outbound lane, except the Housing Gate, which has two outbound lanes.

Interstate 5 is a vital north-south transportation corridor west of the Base, affording easy access to McChord AFB. Interstate 5 connects to several state highways north of the Base. East-west vehicular traffic is provided north of McChord AFB via State Route 512, which intersects with Interstate 5 north of the Base, and provides access to McChord AFB via the Steele Street interchange and local streets. Further north near Tacoma, State Highway 16 branches off of Interstate 5 and continues northwest, crossing over Puget Sound. Interstate 5 continues north to eventually intersect with Interstate 705, which connects to downtown Tacoma. McChord AFB has excellent access to the regional transportation network of highways. Rail linkage is available through McChord AFB via the Burlington Northern Railroad, whose right-of-way bisects the installation into eastern and western sections.

Level of Service (LOS) is a measure of the quality of flow and overall congestion on a particular section of road or at a specific intersection. LOS is generally calculated at signalized and non-signalized intersections based on methodologies outlined in the 1997 Highway Capacity Manual (HCM) by the Transportation Research Board (1977). According to the HCM, there are six LOS ratings by which the operational performance of an intersection may be described:

**Table 3-9. Level of Service Criteria**

- LOS A (free flow) traffic has no restriction;
- LOS B (reasonably free flow) traffic has minor restrictions;
- LOS C (stable flow) traffic has some restrictions;
- LOS D (approaching unstable flow) traffic has increasing restrictions and congestion;
- LOS E (unstable flow) traffic experiences substantial restriction and delays; and,
- LOS F (forced or breakdown flow) traffic has jammed conditions and experiences extreme delays.

LOS	Nominal Range of V/C Ratio
A	0.000 – 0.609
B	0.610 – 0.709
C	0.710 – 0.809
D	0.810 – 0.909
E	0.910 – 1.009
F	1.010 +

For roadway segments, level of service is quantified in terms of a V/C ratio. This V/C ratio is a quantitative comparison of a roadway segment's demand or volume (V) to its theoretical maximum traffic-carrying capacity (C). The resulting V/C ratio establishes level of service per the as shown on Table 3-9.

Traffic volumes at each of the gates and along the main roads leading to each of the existing housing areas on McChord AFB are operating at acceptable levels of service.

### 3.11.2 Solid Waste

Solid waste from the commercial and housing portions of McChord AFB is collected by Lemay, Inc. and transported to either a waste transfer station 15 miles southeast of the Base in Puyallup or to a privately-owned, mixed municipal solid waste landfill in Graham (approximately 24 miles east of the Base). The landfill receives municipal waste from Pierce County, has a capacity of approximately 29.2 million cubic yards, and is expected to be open until 2028 (LRI, 2008).

McChord AFB has an ongoing curbside recycling program in the housing areas which accepts commingled household recyclable materials. The Base operates a recycling center (Bldg 516) and a collection yard for scrap wood, yard waste and tree debris. The recycling center and collection yard are located along South Gate Road.

### 3.12 Visual Resources

McChord AFB is characterized by its abundant natural resources including over 1,000 acres of timberland that contribute vital forest resources, outdoor recreation, wildlife habitat and visual shielding. The visual character of the Base offers aesthetic appeal from the oak and pine habitat typical of the original Puget Sound landscape.

The proposed housing privatization would include demolition, renovation and new home construction within the existing developed housing areas. In addition, the Proposed Action also includes construction of new homes within a stand of mature Douglas fir trees south of Lincoln Boulevard across from the golf course. This area that would be contiguous to an existing recreational area comprised of the golf course

1 and natural forested areas along Lincoln Boulevard. Although the proposed new housing would be  
2 located between the MARS station (not visible from Lincoln Boulevard), military working dog facility and  
3 horse stables, the existing visual character of the surrounding area is a greenbelt that functions as a an  
4 outdoor recreational area. The proposed site at Westcott Hills is not visible from Lincoln Boulevard due to  
5 the height of the canopy at this location and the curvature of the roadway.

### 6 **3.13 Environmental Justice**

7 On February 11, 1994, the President issued Executive Order 12898, *Federal Actions to Address*  
8 *Environmental Justice in Minority Populations and Low-Income Populations*. According to the E.O.  
9 12898, federal institutions are now required to make environmental justice concerns a part of their  
10 mission. In addition, they are to identify any disproportionately adverse affects to human health or the  
11 environment that their programs, activities, and policies have on minority or low-income populations.

12 Low income is typically defined as living below the federally designated poverty level. According to the  
13 2000 Census, Pierce County has a 10 percent low-income level (FHWA, 2002). The American Lake  
14 Garden Tract, in the vicinity of 150<sup>th</sup> Street SW is a small neighborhood with the lowest per capita income  
15 population in Pierce County. The area is predominantly residential. The American Lake Garden tract has  
16 a 50 percent low-income population. Two block groups in the American Lake Garden tract have 50 to 51  
17 percent minority populations (FHWA, 2002).

## CHAPTER 4

### ENVIRONMENTAL CONSEQUENCES

#### 4.1 Mission

The activities associated with the Proposed Action would support the Base's ability to accomplish its mission, which is to provide for the airlift of troops, equipment, and passengers.

#### 4.2 Land Use

An impact to land use would be considered significant if one or more of the following occur as a result of the Proposed Action: conflict with applicable ordinances and/or permit requirements; nonconformance with applicable land use plans; preclusion of adjacent or nearby properties being used for existing activities; or, conflict with established uses of an area.

##### 4.2.1 Proposed Action

The area to be affected by the Proposed Action consists of primarily residential land uses. While the proposed privatization would generally result in continuation of residential land uses in the existing housing areas on McChord AFB, changes in land use that would occur are summarized as follows:

- The Proposed Action would result in elimination of use of approximately 105 acres of land in the Cascade Village, Carter Lake and Heartwood housing areas that are exposed to high levels of transportation noise emanating from Interstate 5. The noise level in this zone is considered normally unacceptable. The Proposed Action would result in conversion of the land use in this noise zone from residential to a sound buffer zone or open space. This change in land use is not significant and considered beneficial.
- The proposed housing privatization would result in future conversion of five acres of land at Command Circle from housing to an alternate use. In addition, approximately seven acres of land at The Bricks would also be converted to temporary living facilities with retention of its historic designation.
- The Proposed Action would result in conversion of 24.91 acres of land in the undeveloped Westcott Hills area (Parcel 40) from its established use as an outdoor recreational and conservation area into a new housing area. The undeveloped Westcott Hills parcel is used as a passive recreational area for horseback riding; conversion of 12.5 acres of land on this parcel would eliminate availability of approximately 0.55 mile of riding trails/foot paths on the Base. This parcel is also a designated Watchable Wildlife Area; conversion of 24.91 acres of this designated land use represents a 9.3 percent reduction in the acreage of Watchable Wildlife Areas on McChord AFB. The proposed construction of 32 new housing units on the Westcott Hills parcel would result in the permanent removal of 12.5 acres of forest management stand and discontinuation of availability of this site as a Watchable Wildlife Area. The remaining 12.4 acres within the 24.91-acre parcel would be retained as a greenbelt surrounding the housing; only slope stabilization and removal of hazardous trees would be allowed. This impact is considered potentially significant because it represents a conflict with an established use of the area.
- The construction of new housing at Cascade Village would result in conversion of approximately 1.7 acres of land from recreational use/open space to housing. Existing restroom facilities associated with the soccer field as well as the open field south and east of the restrooms would be demolished in order to construct additional housing. The Project Owner would improve the existing recreational fields at Cascade Village to provide adequate outdoor recreation. Loss of the 1.7 acres of recreational land at Cascade Village would not be considered significant.
- The Proposed Action would result in no change to the existing and planned land use for the off-Base sewage lift station or the off-Base storm water drainage easement, both of which would continue to function in the same manner.

#### 4.2.2 No Action Alternative

There would be no housing privatization, and no change in existing and planned land use. On- and off-Base land uses would continue with no change to the existing conditions.

#### 4.2.3 Cumulative Impacts

None of the other actions anticipated on McChord AFB would result in any change to on- or off-Base land use. Therefore, no cumulative land use impacts would be anticipated.

#### 4.2.4 Mitigation

The loss of 12.5 acres of passive outdoor recreational area as a result of conversion of the Westcott Hills parcel is considered potentially significant. For this reason, the following best management practices would be implemented as part of the Proposed Action:

- The Project Owner would consult with the McChord AFB Environmental Planning Flight and the Horseman's Club to replace horseback riding trails to a mutually acceptable and appropriate location.
- The Project Owner would consult with the McChord AFB Environmental Planning Flight to evaluate candidate locations for a replacement Watchable Wildlife Area on McChord AFB. This area would replace the 12.5 acres of forest management area at Westcott Hills which is a designated Watchable Wildlife Area.

### 4.3 Noise

An environmental impact analysis related to noise includes the potential impacts on the local population. In considering the basis for evaluating significance of noise impacts, several items were examined, including: 1) the degree to which noise levels generated by construction and aircraft operation activities would be higher than the ambient noise levels; 2) the degree to which there would be annoyance and/or activity interference; and 3) the exposure of noise-sensitive receptors to noise levels above 65 dBA.

#### 4.3.1 Proposed Action

Assuming that noise from the construction and demolition equipment radiates equally in all directions, the sound intensity would diminish inversely as the square of the distance from the source increases. Table 4-1 shows the anticipated sound pressure levels at a distance of 50 feet for miscellaneous heavy equipment.

Construction of housing units and associated improvements would be accomplished as a result of the Proposed Action. Equipment and vehicles required for demolition, site preparation, foundation preparation, construction, and finishing work would generate the primary source of noise from these activities. Construction noise would be intermittent and short-term in duration. Typical noise levels generated by these activities range from 75 to 89 dB at 50 feet from the source.

For the purposes of this assessment, it is estimated the shortest distance between a noise source and a receptor such as a nearby house would be approximately 50 feet.

Noise related to the housing demolition and construction may have a short-term impact on the residents in nearby units. Outdoor noise from construction activity at an occupied building 50 feet from the noise source could be as high as 75 to 89 dB (see Table 4-1). The corresponding interior noise levels during construction activity would be reduced from the 75 to 89 dB level by approximately 18 to 27 dB due to the NLR properties of the building's construction materials (USDOT, 1992). This reduced level of noise could annoy less than 15 percent of nearby persons (refer to Subchapter 3.2.1 and Table 3-1) and cause disruption of speech during the noise event.

It is anticipated that demolition and construction activities would occur between 7:30 a.m. and 4:00 p.m., five days per week for the duration of the project. Individuals would not be outdoors for the entire noise producing period. Under this condition, persons would not be exposed to long-term and regular noise above 75 dB. Therefore, nearby occupants would not experience loss of hearing. Sleep interference is unlikely because the construction activities would occur during the daytime and the distance between the

noise source and living quarters would attenuate the noise. Sleep disturbance, however, may occur for occupants near the work area that are shift workers.

The primary source of noise at McChord AFB would continue to be from aircraft operations. The noise from flying activities would tend to mask the noise generated by construction projects for the same exposure area. The perception would be that construction noise likely would not be discernible during periods of aircraft operations. However, there could be periods of time during which construction noise could be discerned and provide minor annoyance. This condition would occur when construction activity is underway and flying activity is low.

#### 4.3.2 No Action Alternative

Although no housing would be privatized as a result of the No Action Alternative, the demolition, renovation and construction of housing would occur on McChord AFB at a slower pace. The No Action Alternative would result in temporary periods of increased noise in the housing area.

#### 4.3.3 Cumulative Impacts

The distance between the Proposed Action and the sites of other planned construction projects (as defined in Subchapter 2.7 and Table 2-3) is great enough that there would be no combination of construction noise from the project sites. No cumulative impacts to the noise environment would be anticipated.

#### 4.3.4 Mitigation

Noise levels would be temporarily increased during demolition and construction activities associated with the Proposed Action. This impact is not considered significant. Mitigation measures would not be required for the Proposed Action.

### 4.4 Air Quality

Impacts to air quality would be considered significant if federal actions: resulted in violation of a NAAQS; resulted in annual emissions of a pollutant greater than 250 tons per year (definition of a "major stationary source" in an attainment area as defined in 40 CFR 52.21(b)(1); or, exceeded any significance criteria established by the Washington State Implementation Plan.

#### 4.4.1 Proposed Action

Fugitive dust from ground disturbing activities, and combusive emissions from construction equipment, would be generated during renovation, construction and demolition of existing housing and the construction of replacement housing. Fugitive dust would be generated from activities associated with site clearing, grading, cut and fill operations, and from vehicular traffic moving over the disturbed site. These emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. For evaluation purposes, demolition and/or construction activities would occur over an eight-year period. As a standard practice, construction sites will be watered as necessary to minimize fugitive dust emissions. Air pollutant emissions would be localized in the immediate work area and would not result in any adverse effects on overall ambient air quality.

Demolition would include removal of asbestos and lead-based paint from certain housing units. This activity would be conducted in accordance with applicable environmental requirements for the safe

**Table 4-1. Heavy Equipment Noise Levels at 50 Feet**

Equipment Type	Number Used <sup>1</sup>	Generated Noise Levels, L <sub>p</sub> (dB) <sup>2</sup>
Bulldozer	1	88
Backhoe (rubber tire)	1	80
Front Loader (rubber tire)	1	80
Concrete Truck	1	75
Concrete Finisher	1	80
Crane	1	75
Asphalt Spreader	1	80
Roller	1	80
Flat Bed Truck (18 wheel)	1	75
Scraper	1	89
Trenching Machine	1	85
<sup>1</sup> Estimated number in use at any time. <sup>2</sup> L <sub>p</sub> = sound pressure level Source: CERL 1978		

removal and disposal of asbestos and lead-based paint. With implementation of these procedures, adverse impacts associated with asbestos emissions and lead-based paint dust would not be expected.

The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity. The USEPA has estimated that uncontrolled fugitive dust emissions from ground-disturbing activities would be emitted at a rate of 80 lb of TSP per acre per day of disturbance (USEPA, 1995). In a USEPA study of air sampling data at a distance of 50 meters downwind from construction activities, PM<sub>10</sub> emissions from various open dust sources were determined based on the ratio of PM<sub>10</sub> to TSP sampling data. The average PM<sub>10</sub> to TSP ratios for top soil removal, aggregate hauling, and cut and fill operations is reported as 0.27, 0.23, and 0.22, respectively (USEPA, 1988). Using 0.24 as the average ratio for purposes of analysis, the emission factor for PM<sub>10</sub> dust emissions becomes 19.2 lb per acre per day of disturbance. Fugitive dust emissions from demolition activities would be generated primarily from building dismemberment, debris loading, and debris hauling. The USEPA has established a recommended emission factor of 0.011 lb of PM<sub>10</sub> per square foot of demolished floor area. This emission factor is based on air sampling data taken from the demolition of a mix of commercial brick, concrete, and steel buildings (USEPA, 1988).

The USEPA also assumes that 230 working days are available per year for construction (accounting for weekends, weather, and holidays), and that only half of these working days would result in uncontrolled fugitive dust emissions at the emitted rate described above (USEPA, 1995). The construction emissions associated with the Proposed Action at McChord AFB would produce slightly elevated short-term PM<sub>10</sub> ambient air concentrations. The USEPA estimates that the effects of fugitive dust from construction activities would be reduced significantly with an effective watering program. Watering the disturbed area of the construction site twice per day with approximately 3,500 gallons per acre per day would reduce TSP emissions as much as 50 percent (USEPA, 1995).

Specific information describing the types of construction equipment required for a specific task, the hours the equipment is operated, and the operating conditions can vary widely. For purposes of analysis, these parameters were estimated using established cost estimating methodologies for construction and experience with similar types of construction projects (Means, 1996). Combustive emissions from construction equipment exhausts were estimated by using USEPA approved emissions factors for heavy duty diesel powered construction equipment (USEPA, 1985).

Table 4-2 shows estimated annual emissions from construction equipment exhaust associated with the Proposed Action at McChord AFB. Values on Table 4-2 reflect the average annual estimated emissions during the proposed 8-year construction period. As with fugitive dust emissions, combustion emissions would produce slightly elevated air pollutant concentrations. However, the effects would be temporary, fall off rapidly with distance from the proposed construction site, and would not result in any long-term impacts. Table 4-2 also shows the annual percent of change when compared to the baseline for the Proposed Action.

**Table 4-2. Proposed Action Emissions, 8-Year Construction Period**

Criteria Air Pollutant	CO <sup>a</sup> (tpy)	VOC <sup>a</sup> (tpy)	SO <sub>x</sub> <sup>a</sup> (tpy)	NO <sub>x</sub> <sup>a</sup> (tpy)	PM <sub>10</sub> <sup>b</sup> (tpy)
AQCR Totals	1,268,000	164,000	11,000	158,000	71,000
Proposed Action Annual Construction Emissions (average annual emissions during 8-yr construction period)	9.30	3.90	2.89	26.72	44.79
Project Emissions as Percent of AQCR Emissions (8-year construction period)	0.0007%	0.0024%	0.0262%	0.0169%	0.1499%
a PSCAA 2003 Air Quality Data Summary, September 2004. Values are from calendar year 2002. b PSCAA 2002 Air Quality Data Summary, January 2004. PSCAA no longer reports PM <sub>10</sub> emissions. Values are from calendar year 1999. tpy tons per year Note: VOC is not a criteria air pollutant. However, VOC is reported because, as an ozone precursor, it is a controlled pollutant.					

Review of the data in Table 4-2 indicates that the greatest increase in emissions from demolition and construction activities would be PM<sub>10</sub> (44.79 tons per year), which equates to 0.1499 percent of the PM<sub>10</sub> emissions within the AQCR. The emissions would be temporary and would cease after completion of the activity.

Based on the requirements outlined in the USEPA general conformity rule published in 58 Federal Register 63214 (November 30, 1993) and codified at 40 CFR Part 93, Subpart B (for federal agencies), a conformity analysis is required to analyze whether the applicable criteria air pollutant emissions associated with the project equal or exceed the threshold emission limits that trigger the need to conduct a formal conformity determination. The intent of the conformity rule is to encourage long range planning by evaluating air quality impacts from federal actions before the projects are undertaken. This rule establishes a process for analyzing and determining whether a proposed project in a nonattainment area conforms to the SIP and federal standards. Emissions from the Proposed Action would fall below the 10 percent level that would be considered regionally significant by the USEPA if the region were nonattainment. Since the area is in maintenance attainment, the emissions need to be compared to the de minimis threshold values for each criteria pollutant in maintenance attainment. The project area is in maintenance status for three criteria pollutants: PM<sub>10</sub>, CO and 1-hour O<sub>3</sub>. The de minimis threshold level for all of these criteria pollutants is 100 tons per year; therefore, the threshold level applies to PM<sub>10</sub>, CO, NO<sub>x</sub> and VOC emissions, since NO<sub>x</sub> and VOC are the precursors to ozone. None of these pollutant emissions exceed 100 tons per year; therefore, no general conformity determination would be required for the Proposed Action.

#### 4.4.2 No Action Alternative

The No Action Alternative would result in no emissions from housing privatization activities, although air pollutant emissions from ongoing housing renovations would continue to occur. Emissions would continue to be generated by Base activities such as aircraft operations and other aircraft maintenance activities, as well as vehicle, boiler, generator, and fueling operations, and industrial processes. It is anticipated the emissions from these activities would continue at the levels generated under the baseline condition.

#### 4.4.3 Cumulative Impacts

The Air Force proposes to conduct two other known construction projects over the eight years during which the proposed construction associated with the housing privatization on McChord AFB would occur. Neither of these projects would be expected to generate air pollutant emissions that exceed applicable standards, or that would cumulatively contribute to degradation of air quality. Therefore, the air emissions from the construction associated with the Proposed Action cumulative conditions would not be considered significant.

#### 4.4.4 Mitigation

Potential criteria pollutant emissions associated with the Proposed Action do not exceed significance criteria requirements. Therefore, no mitigative actions for improving the ambient air quality would be required. Although no mitigation measures are required, the Air Force would ensure that the best management practice of site watering for dust control is accomplished for construction involving ground disturbance.

### 4.5 Geology and Soils

An impact to geological resources would be considered significant if it resulted in substantial erosion or if alteration of ground surface features occurred through activities such as excavation.

#### 4.5.1 Proposed Action

With the exception of the Westcott Hills parcel, the proposed housing to be privatized is located in portions of the Base that have been disturbed and altered by previous activities. Facilities will be designed in consideration of recommendations of the geotechnical investigation for the project. The ground disturbance associated with demolition and replacement of housing on McChord AFB would not result in any substantial changes to physiographic features. No changes in site elevation would be required and alteration of ground surfaces would be minimal. Earthwork would be planned and

conducted in a manner to minimize the duration of exposure of unprotected soils. Work would be conducted in accordance with best management practices for erosion control. Landscaping of exposed surfaces following completion of construction would minimize the potential for erosion. Therefore, impacts to geologic resources would not be considered significant.

Construction of the proposed new housing on the 24.91-acre Westcott Hills parcel would occur in the relatively impermeable Vashon Till geologic unit (USAF, 2008). Adequate stormwater runoff protection would be provided in project planning and design. No change in the site elevation would be anticipated. Alteration of ground surfaces would be accomplished in accordance with recommendations of a site-specific geotechnical investigation.

Earthwork at the proposed housing areas would be planned and conducted in such a manner as to minimize the duration of exposure of unprotected soils. Standard construction best management practices to minimize erosion during earthmoving activities would be incorporated into project design and planning. Vegetation would be reestablished in the disturbed areas immediately after construction is completed to reduce the potential for erosion. Therefore, with implementation of these avoidance measures, impacts to soils would not be considered significant.

#### 4.5.2 No Action Alternative

The No Action Alternative would result in continuation of ongoing housing renovation and maintenance. Limited ground disturbance would occur in the existing housing areas. No ground disturbing activities at the Westcott Hills parcel would occur. Therefore, no impact to physiographic features and soils in Westcott Hills would be anticipated.

#### 4.5.3 Cumulative Impacts

The Proposed Action is one of two other planned projects involving construction on McChord AFB, as identified on Table 2-3. Construction activity at McChord AFB would occur in areas where the physiographic features and soils have been previously disturbed and modified by prior construction. The Proposed Action, when combined with other actions, would not be expected to cumulatively contribute to impacts to geologic resources.

#### 4.5.4 Mitigation

Impacts to geology and soils that would result from implementation of the Proposed Action would not be considered significant. Therefore, mitigative actions for geology and soils would not be required. Although no mitigation measures are required, the Air Force would ensure that:

- best management practices associated with proper stormwater management and erosion control are accomplished for construction involving ground disturbance;
- housing areas are designed and constructed in accordance with recommendations of a site-specific geotechnical investigation

### 4.6 Water Resources

Impacts to water resources would be considered significant if any of the following were to occur: substantial flooding or erosion; adverse effects on any important water body (such as stream, lake, or bay); exposure of people to reasonably foreseeable hydrologic hazards such as flooding or tsunamis; or, adverse effects to surface or ground water quality or quantity.

#### 4.6.1 Proposed Action

Runoff from construction areas could contain contaminants that could degrade the quality of receiving waters. The potential for increased erosion and sedimentation could occur as a result of construction that requires grading, demolition, and construction of new fuel tanks. These activities could result in soil disturbance and increased erosion and sedimentation that could potentially enter surface waters if not properly managed. To prevent storm water pollution, standard erosion control practices include:

- Minimizing soil disturbance whenever possible (conduct earthwork to minimize the duration of exposure of unprotected soils);

- 1       ▪ Establish single point construction entries to minimize erosion during demolition and
- 2       construction;
- 3       ▪ Use of mulch or artificial cover where repeated disturbance is expected;
- 4       ▪ Stabilization of soil within 30 days of final disturbance through vegetative or permanent artificial
- 5       means (e.g., paving or rip-rapping);
- 6       ▪ Reestablish grass and other landscaping in disturbed areas immediately after construction is
- 7       completed;
- 8       ▪ Adherence to appropriate State and federal permits and procedures for significant excavation
- 9       (more than one acre of disturbed soil);
- 10      ▪ Adherence to state and federal guidelines for erosion and sedimentation control in any area of
- 11      disturbed soil;
- 12      ▪ Covering of outside storage of any materials or wastes;
- 13      ▪ Keep exterior yards, parking areas, roadways and storage areas orderly and free of materials
- 14      that could add pollutants to storm water;
- 15      ▪ Sweep paved areas as warranted; and,
- 16      ▪ Keep drainage and outfall pipes unclogged.

17 Specific BMPs to prevent discharge of contaminants into surface waters during tank demolition and  
18 construction would be followed during demolition and construction activities. Practices to be followed for  
19 areas that have the potential for sediment and erosion control include:

- 20      ▪ Retain as much vegetation on site as possible;
- 21      ▪ Minimize the time that soil is exposed;
- 22      ▪ Redirect runoff to vegetated areas;
- 23      ▪ Stabilize the disturbed soils as soon as possible;
- 24      ▪ Slow down the runoff flowing across the site;
- 25      ▪ Provide drainage paths for the increased runoff (use grassy swales rather than concrete drains);
- 26      ▪ Remove sediment from storm water runoff before it leaves the site;
- 27      ▪ Preserve natural vegetation when possible;
- 28      ▪ Establish buffer zones to reduce the speed of storm water runoff from the site;
- 29      ▪ Use mulching, matting and netting or utilize temporary seeding;
- 30      ▪ Use permanent seeding and planting (e.g., grasses, bushes or sod); and,
- 31      ▪ Use chemical stabilization.

32 More permanent practices and structures to help prevent sedimentation and erosion include:

- 33      ▪ Install interceptor dikes and swales, pipe sloop drains, or subsurface drains;
- 34      ▪ Use of filter fences, straw bale barriers, or brush barriers;
- 35      ▪ Use storm drain inlet protection (i.e., sandbags, filter fences or straw bales); and,
- 36      ▪ Construction of a sediment trap or establish a temporary sediment basis with outlet protection.

37 Procedures for spill prevention and response, routine inspection of discharges at sites, and proper  
38 training of employees have been included in facility planning documents. With implementation of these  
39 BMPs, impacts to water quality at McChord AFB would not be considered significant.

40 The Proposed Action would result in no substantial change to the amount of impervious areas that could  
41 reduce percolation. No change in the volume of storm water runoff from any of the housing areas would  
42 be anticipated, with the exception of the Westcott Hills parcel. Storm water runoff would flow into  
43 drainage systems that are of sufficient capacity. Adequate drainage would be incorporated into design of  
44 housing areas. Water that would collect within the diked area would be removed through a drain pipe  
45 with a lock type shutoff valve. The valve would remain closed at all times except when draining water  
46 from the diked basin. A designated/authorized person would be physically present at all times in the

immediate area when the dike drain valve would be open. With adherence to best management practices, adverse effects from erosion would be avoided. Significant impacts to surface water would not be expected as a result of the Proposed Action.

Excavation would not be expected to reach the depth of ground water. Therefore, impacts to ground water would not be considered significant.

#### 4.6.2 No Action Alternative

The No Action Alternative would not result in any demolition or construction activities at McChord AFB, although ongoing renovation and maintenance activities would continue. No change to surface or ground water resources would occur.

#### 4.6.3 Cumulative Impacts

The Proposed Action is one of two other planned projects involving construction on McChord AFB, as identified in Table 2-3. With adherence to BMPs for storm water management, the Proposed Action when combined with other actions, would not be expected to cumulatively contribute to impacts on water resources.

#### 4.6.4 Mitigation

The Proposed Action would not be expected to result in any significant impacts to surface or ground water resources at McChord AFB. Mitigation measures would not be required for the Proposed Action. Although mitigation is not required, adherence to the best management practices described in Subchapter 4.6.1 and general BMPs in the applicable Storm Water Pollution Prevention Plan (SWPPP) would prevent or minimize impacts of tank construction and operation.

### 4.7 Biological Resources

An impact to biological resources would be considered significant if the action would impact a threatened or endangered species, substantially diminish habitat for a plant or animal species, substantially diminish a regionally or locally important plant or animal species, interfere substantially with wildlife movement or reproductive behavior, and/or result in a substantial infusion of exotic plants or animal species.

#### 4.7.1 Proposed Action

**Vegetation.** With the exception of the Westcott Hills site (Parcel 40), construction activities associated with the Proposed Action would occur primarily within previously disturbed, developed areas. The activities would not substantially change habitat for plant or animal species, nor would they diminish an important plant or animal species. Trees and shrubs would be retained to the greatest extent possible. There would be no impacts to vegetation outside the developed areas of the Base. Use of best management practices and reestablishment of ground cover during construction would minimize the potential for adverse effects to vegetation at and near the construction sites. Therefore, no significant adverse effects would be anticipated to vegetation.

Proposed construction on the 24.91-acre Westcott Hills parcel would be located in a mature, Douglas fir forested natural area within Forest Management Stand No. 25. Approximately 12.5 acres of this on-Base forested area would be cleared in order to construct 32 housing units, associated community amenities and roadway improvements. The remaining 12.4 acres within the 24.91-acre parcel would be retained as a greenbelt surrounding the housing; only slope stabilization and removal of hazardous trees would be allowed in this greenbelt. The removal of 12.5 acres of forested area would represent a loss of approximately 1.4 percent of the unimproved forested land on the installation. Because the entire parcel would no longer function as a viable forest management stand, conversion of the entire 24.91-acre Westcott Hills parcel represents a loss of approximately 2.9 percent of the unimproved forested land on the installation. Loss of this vegetation would be considered potentially significant.

**Wildlife.** While privatization of existing housing on McChord AFB would be primarily on previously-disturbed areas that serve as marginal habitat for wildlife, construction of proposed housing on the Westcott Hills parcel would result in loss of approximately 12.5 acres of optimal wildlife habitat. A variety of birds use this Douglas fir habitat for foraging and nesting, and mammals such as deer may occasionally wander through the site. Loss of this area would result in a detrimental effect on wildlife

movement and reproductive behavior. This habitat loss represents approximately 3 percent of the non-commercial forested land on the Base and approximately 9.3 percent of the Watchable Wildlife Areas on the Base. The Proposed Action would reduce habitat for plant or animal species because the Westcott Hills site contains high quality habitat designated for conservation. With the incorporation of avoidance measures and best management practices, the Proposed Action would not be expected to result in any significant adverse effects to wildlife.

**Threatened, Endangered, and Special Status Species.** Proposed construction activities in the housing area would not impact continued existence of the federal and state listed endangered and threatened species occurring on McChord AFB. The Proposed Action would not be expected to affect wintering bald eagles, an incidental species that does not nest on McChord AFB. Although surveys for presence of the Western gray squirrel, a Federal Species of Concern and State threatened species reported along the Perimeter Road, have not been conducted on the Westcott Hills parcel, this site would not be considered optimal habitat for the species due to the poor condition of the existing oak woodland and the absence of vegetative characteristics required to support the species. With the incorporation of avoidance measures and best management practices, the Proposed Action would not be expected to result in any significant adverse effects to the species.

The Proposed Action would not be expected to result in any impact to water howellia which occurs primarily in wetland areas. Two Federal Species of Concern plants could occur on the proposed Westcott Hills site. Botanical surveys for Torrey's peavine and white-top aster have not been conducted for the undeveloped project areas. With the incorporation of avoidance measures and best management practices, the Proposed Action would not be expected to result in any significant adverse effects to the sensitive plant species.

The Proposed Action would not be expected to significantly diminish any regionally or locally important plant or animal species. Wildlife conservation would continue to be managed in accordance with the McChord AFB INRMP and its conservation objectives, policies and programs. With incorporation of best management practices, the Proposed Action would not result in any significant impacts to threatened or endangered species. Impacts to Species of Concern would not be expected.

**Wetlands.** The proposed housing privatization at McChord AFB would not require construction of any structures in or adjacent to any wetlands. A buffer zone surrounding each of the wetlands to be leased to the Project Owner has been established to protect the wetlands and no development would be allowed in the buffer zone. Design and construction of housing and associated community amenities would avoid wetlands. Wetlands would continue to be managed in accordance with the McChord AFB INRMP and its conservation objectives, policies and programs. With best management practices, significant adverse effects to wetlands would not be expected.

#### 4.7.2 No Action Alternative

No construction or operational actions associated with housing privatization would be accomplished at McChord AFB with implementation of the No Action Alternative. However, facilities construction typical of that in previous years likely would occur as part of the overall facilities modernization plan for McChord AFB. The potential for adverse effects to biological resources on McChord AFB would be minimized through compliance with existing natural resources management plans.

#### 4.7.3 Cumulative Impacts

The Air Force proposes to conduct two other construction projects over the eight years during which the proposed construction associated with housing privatization on McChord AFB would occur. Biological resources would continue to be managed in accordance with existing regulations and the INRMP for McChord AFB. With incorporation of best management practices, the Proposed Action would not result in any cumulative impacts that are considered significant.

#### 4.7.4 Mitigation

No mitigation measures for biological resources would be required. Although no mitigation is required, the Air Force would ensure that the following best management practices are accomplished:

- 1     ■ The Construction Project Quality Assurance Evaluator (QAE) will identify the proposed limits of  
2     construction at the site to avoid unnecessary removal of oak, pine or fir trees and associated  
3     vegetation.
- 4     ■ A biological survey for Western gray squirrel, white top aster, and Torrey's peavine will be  
5     conducted prior to project design for the undeveloped Westcott Hills parcel. In the event that a  
6     biological survey is not conducted in advance of construction at this site, a qualified biological  
7     monitor shall be present to monitor clearing and earthwork on this parcel.
- 8     ■ A biological survey for Western gray squirrel, white top aster, and Torrey's peavine will be  
9     conducted prior to project design for use of any undeveloped forested areas on Parcel 39. In the  
10    event that a biological survey is not conducted in advance of construction at this site, a qualified  
11    biological monitor shall be present to monitor clearing and earthwork on this parcel.
- 12    ■ In the event that Western gray squirrel is identified on any of the proposed sites, 62 CES/CEV  
13    would identify appropriate mitigative actions. The Washington Department of Fish and Wildlife  
14    would be contacted for coordination and consultation.
- 15    ■ In the event that white top aster or Torrey's peavine plants are identified on any of the proposed  
16    sites, 62 CES/CEV would contact the Washington Natural Heritage Program Rare Plant Program  
17    to allow a floral recovery effort to salvage plant specimens for relocation or propagation. The  
18    U.S. Fish and Wildlife Service would be contacted for coordination.
- 19    ■ Construction at Cascade Village will be limited to the existing developed housing area which is  
20    within the paved footpath along the eastern perimeter of the recreational field. No construction  
21    within the undeveloped forested areas adjacent to Cascade Village would occur.
- 22    ■ Forest products (*i.e.*, firewood) removed from the any of the forested portions of any housing  
23    privatization site will be salvaged and sold by the Government in accordance with AFI 32-7064  
24    and Paragraph 13 of 62 AW Instruction 32-10. Timber removed from the site shall be hauled to  
25    decking location specified by the Natural Resources Manager of the Environmental Flight. Logs  
26    shall be 6 inches in diameter and larger. Disposal of forest slash and stumps produced during  
27    tree removal is the responsibility of the privatization project manager.
- 28    ■ 62 CES/CEV would coordinate with the Fort Lewis conservation biologist to enable commercial  
29    harvesting of trees within delineated sites before any tree removal, if applicable and feasible.
- 30    ■ Construction work or other improvements at any undeveloped parcels shall not commence  
31    without the presence of a biological monitor who would ensure that Western gray squirrel is not  
32    nesting or present in the area.
- 33    ■ The Project QAE will ensure that any equipment storage areas and construction lay down areas  
34    are sited within the established construction work limits.
- 35    ■ Removal of Garry oak trees would be avoided. Trees would not be removed without prior  
36    authorization of the 62d CES Environmental Flight.
- 37    ■ Forest management stands within the privatization area will continue to be managed by the Air  
38    Force in the long-term on an uneven-age basis. As an additional long-term management  
39    practice, selective individual sanitation/selective cuts will continue to be done for infested,  
40    diseased and hazard trees, when necessary.
- 41    ■ Ponderosa pine trees located within the construction zone at any housing privatization site would  
42    be avoided. Trees would not be removed without prior authorization of the 62d CES  
43    Environmental Flight.
- 44    ■ Construction workers and vehicles will be prohibited from forested areas by establishing  
45    restricted areas in the construction zone.
- 46    ■ Construction and development in designated wetlands or within the wetland buffers will be  
47    prohibited. Construction activities adjacent to any wetlands or wetland buffers will be conducted  
48    with protective measures to avoid any discharge of construction waste or runoff into any of the  
49    wetlands. Standard erosion and sedimentation control measures shall be implemented during  
50    construction work.

## 4.8 Cultural Resources

An undertaking is considered to have an effect on a historic property when the undertaking may alter characteristics of the property that may qualify the property for inclusion in the NHRP. An effect is considered adverse when it diminishes the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties would include, but would not be limited to:

- physical destruction, damage, or alteration of all or part of the property;
- isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
- introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;
- neglect of a property resulting in its deterioration or destruction; and
- transfer, lease, or sale of the property (36 CFR 800.9[b]).

Any ground-disturbing action in the area of an NRHP-eligible or potentially eligible archaeological site, or modification to such a site, can affect the integrity of that cultural resource, resulting in - alteration or destruction of those characteristics or qualities which make it significant and potentially eligible for inclusion in the NRHP. While archaeological sites or historic buildings or structures can be destroyed during a single event, more often it is the cumulative effect of recurrent disturbing actions that diminish the integrity of the cultural resource and its significant characteristics.

For this analysis, the ROI is synonymous with the area of potential effect, as defined by the NHPA. The ROI is the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist.

### 4.8.1 Proposed Action

**Archaeological Resources.** A total of five NRHP-eligible historic archaeological sites are within the ROI for McChord AFB. Gate improvements at the Main, A Street and East Gates would be designed and constructed to avoid these historic archaeological sites.

In the event that previously undetected archaeological resources are discovered during earthwork, the construction contractor would be required to stop construction activities in the affected area (and a reasonable buffer exclusionary area) and contact the 62 CES/CEV Cultural/Natural Resources Manager. Procedures to follow must be in accordance with Section 5.5.1 of the Base Cultural Resources Management Plan. Any unknown site or other cultural remains inadvertently discovered must be assumed to be potentially eligible for NRHP listing. The 62 CES/CEV Cultural/Natural Resources Manager would then notify the Installation Commander about the nature, location and circumstances of the discovery. Where no human remains are involved, the 62 CES/CEV Cultural/Natural Resources Manager shall consult with SHPO to obtain written approval for an emergency discovery treatment plan as required. In the event further investigation is required, any data recovery would be performed in accordance with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (48 FR 44734-37) and take into account the Council's publication, Treatment of Archaeological Properties.

The Proposed Action would not result in any significant adverse effects to archaeological resources on McChord AFB.

**Historical Resources.** The Proposed Action would not result in significant adverse effects to historical resources on McChord AFB.

**Native American Concerns.** The Proposed Action would not result in impacts to Native American concerns on McChord AFB. In accordance with the McChord AFB CRMP, NAGPRA and AFI 32-7065, should any Native American human remains be encountered on the Base during ground disturbance activities, the Project Owner shall immediately notify the McChord AFB Cultural Resources Manager, who will notify the SHPO and appropriate Native American groups.

#### 4.8.2 No Action Alternative

No facilities actions associated with housing privatization would be accomplished at McChord AFB as a result of the No Action Alternative. However, facilities construction typical of that in previous years likely would occur as part of the overall facilities modernization plan for McChord AFB. Cultural resources would continue to be managed in accordance with existing regulations and the CRMP for McChord AFB.

#### 4.8.3 Cumulative Impacts

The Air Force proposes to conduct six other construction projects over the three years during which the proposed construction for housing privatization on McChord AFB would occur. Cultural resources would continue to be managed in accordance with existing regulations and the CRMP for McChord AFB. When combining the other actions with the Proposed Action, no cumulative significant adverse cultural resources effects, including visual, would be anticipated.

#### 4.8.4 Mitigation

No mitigation measures would be required. Although no mitigation is required, the Air Force would ensure that the following best management practices are accomplished:

- The Project Owner will comply with all conditions and stipulations contained in the preservation covenant and SHPO concurrence for transfer of The Bricks housing (Historic Row House Complex).
- The Project Owner or the Air Force will initiate a review of the eligibility of the water infrastructure facilities on Parcels 32 and 39 in order to determine any restrictions on the parcel that may be applicable during housing privatization.
- Construction work limits will be delineated on contractor work packages to ensure that sensitive areas are not accessed during groundwork.
- In the event that previously undetected archaeological resources are discovered during earthwork, the Army and the Air Force will ensure that the construction contractor follows the procedures described in Section 5.5.1 of the McChord AFB Cultural Resources Management Plan.
- In the event that Native American human remains are discovered during earthwork, the Project Owner shall immediately notify the McChord AFB Cultural Resources Manager, who will notify the SHPO and appropriate Native American groups. The Project Owner would be required to follow the procedures described in Sections 4.3.3.4 and 5.5.2 of the McChord AFB Cultural Resources Management Plan.

### 4.9 Environmental Management

Impacts to the environmental restoration program would be considered significant if the federal action disturbed (or created) contaminated sites and/or impeded progress of the cleanup, resulting in adverse effects to human health or the environment.

#### 4.9.1 Proposed Action

The Proposed Action would require demolition and construction activities at three housing locations on McChord AFB. Proposed demolition and construction of housing would be located in areas that are within proximity to known ERP sites. Construction activities at housing areas would be coordinated with the Base Environmental Flight and Bioenvironmental Engineering to ensure that construction would avoid interference with any ongoing ERP investigation and remediation work and would not worsen the condition of any site. Before construction activities begin, the contractor would be required to coordinate with the Environmental Flight and prepare a work plan and health and safety plan in case contamination is encountered during excavation activities. The work plan and health and safety plan would address measures for using field instruments capable of detecting contaminants at harmful levels. In the event any contaminated soil is encountered, the construction contractor will be required to excavate, properly dispose any contaminated soil and replace excavated soil with clean soil. With implementation of these best management practices, impacts to ERP sites would be avoided.

Construction at Parcel 34 above historic Landfill No. 4 (beneath the existing recreational fields adjacent to existing Cascade Village housing) may result in impacts to buried domestic, construction and hazardous discarded materials and potential contamination of ground water. Disturbance to the historic landfill may require response actions, and materials unearthed from old unpermitted landfills are required by law to be properly disposed of in modern permitted landfills.

#### 4.9.2 No Action Alternative

No housing privatization would be accomplished at McChord AFB as a result of the No Action Alternative. Impacts to ERP sites would not be anticipated. However, facilities construction typical of that in previous years likely would occur as part of the overall facilities modernization plan for McChord AFB. Management of construction activities near ERP sites would continue in accordance with applicable environmental plans and policies for McChord AFB.

#### 4.9.3 Cumulative Impacts

The construction contractors for other projects would be required to comply with the regulatory requirements and best management practices typical to those identified for the Proposed Action. None of the other actions are adjacent to housing sites on McChord AFB. Compliance with regulatory requirements and best management practices identified for the Proposed Action would minimize the potential for cumulative impacts. No cumulative ERP impacts would be anticipated.

#### 4.9.4 Mitigation

Impacts to environmental management and known ERP sites would not be anticipated. Although no mitigation measures are required, the Air Force would ensure that the following best management practices are included in project planning:

- Facilities design and construction activities in the housing areas would be coordinated with the Base Environmental Flight and Bioenvironmental Engineering to ensure that construction would avoid interference with any ongoing ERP investigation and remediation work and would not worsen the condition of any site.
- Facilities design and construction activities in Parcel 34 would be coordinated with the Base Environmental Flight and Bioenvironmental Engineering to ensure that siting of new housing and other construction activities avoid disturbance to historic Landfill No. 4.
- Before demolition or construction activities begin, the contractor would be required to coordinate with the Environmental Flight and prepare a work plan and health and safety plan in case contamination is encountered during excavation activities. The work plan and health and safety plan would address measures for using field instruments capable of detecting contaminants at harmful levels.
- In the event any contaminated soil is encountered, the construction contractor will be required to excavate, properly dispose any contaminated soil and replace excavated soil with clean soil.
- The privatization project manager would be responsible for disposal of demolition wastes generated by privatization activities.

### 4.10 Hazardous Substances

Impacts to hazardous materials and waste management would be considered significant if the federal action resulted in noncompliance with applicable federal and Washington environmental quality regulations or caused waste generation that could not be accommodated by current McChord AFB waste management capacities.

#### 4.10.1 Proposed Action

**Hazardous Materials.** Products containing hazardous materials would be procured and used during demolition and construction of housing, as well as during occupancy of privatized housing. Construction contractors and the Project Owner would be required to use and store hazardous materials in accordance with all federal, state, and local regulations. It is not anticipated that any new hazardous materials not currently used on the Base would be needed for housing privatization activities. Hazardous materials

handling processes and procedures would be implemented by the Project Owner in accordance with Air Force requirements.

**Hazardous Wastes.** Hazardous wastes could be generated during the demolition and construction activities. It is anticipated that the quantity of hazardous wastes generated during the construction period would be negligible. The construction contractor would maintain records of all waste determinations, including appropriate results of analysis performed, substances and sample locations, date and time of collection, and other pertinent data as required by 40 CFR Part 280, Section 74 and 40 CFR, Part 262, Subpart D.

In the event of a spill of any amount or type of hazardous material or waste (petroleum products included), the construction contractor would take immediate action to contain and clean up the spill. The Project Owner's spill clean up personnel would be trained and certified to perform spill clean up. The Project Owner would be responsible for proper characterization and disposal of any waste and clean up materials generated. All waste and associated clean up material would be removed from the project site and transported and/or stored in accordance with regulations until final disposal.

The potential for hazardous waste generation from housing privatization would be limited to household hazardous waste and would continue to be negligible. Any hazardous waste generated would be handled in accordance with federal, state, and local laws and regulations, including RCRA requirements for waste management and Department of Transportation requirements for waste transport.

#### 4.10.2 No Action Alternative

No privatization of military family housing would be accomplished at McChord AFB as a result of the No Action Alternative. It is anticipated that the volumes of hazardous materials purchased and hazardous wastes generated would continue at the current levels. No significant impacts occur from the volumes of materials and wastes purchased and generated. Existing management procedures would continue to be practiced.

#### 4.10.3 Cumulative Impacts

The construction contractors for other projects would be required to comply with Air Force procedures established for hazardous materials and waste management as described for the Proposed Action. None of the other actions are adjacent to housing sites on McChord AFB. Compliance with regulatory requirements and best management practices identified for the Proposed Action would minimize the potential for cumulative impacts. Cumulative significant hazardous materials and wastes impacts would not be anticipated.

#### 4.10.4 Mitigation

No significant impacts would be anticipated. Therefore, no mitigation would be required.

### 4.11 Utilities and Infrastructure

Impacts to the transportation systems and solid waste management would be considered significant if the federal action substantially increased the demands on systems, resulting in the need for additional capacity or new facilities.

#### 4.11.1 Proposed Action

**Transportation Systems.** Impacts would include a temporary increase in construction-related traffic during the demolition and construction activities. It is anticipated that construction-related traffic would be localized to the specific work area using the Main Gate as the primary access. No roadway closures would be anticipated during the construction period. Construction-related traffic would be temporary, lasting as long as work in the specific housing area.

Upon completion of demolition and construction, it is anticipated that vehicular traffic in the housing areas would be acceptable, with no substantial change in volumes from baseline conditions. While the Proposed Action would result in a new street grid and changes in traffic flow, adequate vehicular access and roadway capacity would be provided. The Proposed Action would not result in any substantial

change in traffic patterns or increased congestion. The proposed housing privatization would not be expected to result in any change in level of service on roadways near the housing area.

**Solid Waste Management.** Type IV solid waste would be generated during construction, demolition and renovation activities associated with the Proposed Action. These wastes would consist of building debris and construction materials such as concrete, fiberglass (roofing materials and insulation), cardboard, and plastics (PVC piping, packaging material, shrink wrap). Most of the solid waste would be generated as a result of housing demolition.

It is assumed construction debris would be disposed in the LRI Landfill in Graham, Washington. It is assumed the contractor would recycle materials to the maximum extent possible, thereby reducing the amount of construction and demolition debris disposed in the landfill. As mentioned in Subchapter 3.11.2, the LRI landfill has a remaining capacity of 29.2 million cubic tons and a projected life expectancy of 20 years. The projected disposal from the project would not significantly reduce the life expectancy of the landfill in Graham.

The Proposed Action would result in a decrease in the number of personnel residing on McChord AFB. This would result in a decrease in solid waste generated by military and civilian personnel. The Project Owner responsible for privatization would be responsible for continuing trash and recycling services for on-Base housing in accordance with the applicable Base management plans. Impacts to solid waste management would not be considered significant.

#### 4.11.2 No Action Alternative

No privatization of military family housing would be accomplished at McChord AFB as a result of the No Action Alternative. Although there could be minor variations in the number of personnel authorizations at the Base, no large-scale changes would occur. For these reasons, traffic and solid waste generation would continue at the levels experienced under the current conditions. The volume of vehicular traffic would be expected to remain at current levels.

#### 4.11.3 Cumulative Impacts

**Transportation Systems.** Construction projects associated with other planned actions would not be expected to result in any increase project-related traffic. Since some of the other actions are in the same area as the Proposed Action construction activities, there could be a slight cumulative increase in traffic during period when multiple construction projects occur simultaneously. As with the Proposed Action, the construction-related traffic would be temporary, lasting as long as the project activity in that area. It is anticipated that vehicular traffic on the Base would be continue to be acceptable during the construction period, with no substantial change in volumes from baseline conditions. No substantial change in traffic congestion would be expected during construction as a result of the cumulative condition.

**Solid Waste Management.** The Proposed Action, when combined with other actions, would result in a cumulative impact on generation of solid waste. It is assumed the contractor would recycle materials to the maximum extent possible, thereby reducing the amount of construction and demolition debris disposed in the landfill. Disposal of construction and demolition debris from the Proposed Action combined with other planned projects would not significantly reduce the life expectancy of the landfill. Cumulative impacts to solid waste management would not be considered significant.

#### 4.11.4 Mitigation

No significant impacts to transportation or solid waste management would be anticipated. Therefore, no mitigation would be required.

### 4.12 Visual Resources

A project would be considered to have a significant impact on visual resources if it would: have a substantial adverse effect on a scenic vista; substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway; substantially degrade the existing visual character or quality of the site and its surroundings; conflict with established plans or policies concerning visual resources; or, create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

#### 4.12.1 Proposed Action

The Proposed Action would result in the construction of 32 new homes on the 24.91-acre Westcott Hills parcel located south of Lincoln Boulevard. The proposed housing on the Westcott Hills parcel would not be visible from Lincoln Boulevard due to shielding by the greenbelt that would surround the new structures. The height of trees in the buffer zone would exceed the height of the new homes, although it is possible that some artificial lighting would be visible.

The Proposed Action would not result in any effect on scenic vistas. Construction of housing on the Westcott Hills parcel would require the removal of approximately 12.5 acres of existing Douglas fir and Garry oak trees. Removal of these trees would not be considered a substantial loss of scenic resources because the tree line along Lincoln Boulevard would continue to be visible.

The placement of housing would represent a change in the visual appearance at this location, but would not result in a substantial change in the overall visual character with retention of the forested buffer zone around the homes. There would be no substantial change to the quality of the visual field as seen from Lincoln Boulevard.

The Proposed Action would result in a conflict with established land uses on the Westcott Hills parcel, however, and there would be a conflict with plans and policies for future conservation at this location. With incorporation of the forest buffer zone around the housing, a visual buffer for Lincoln Boulevard would be established. For these reasons, the Proposed Action would not result in any significant impacts to visual resources.

#### 4.12.2 No Action Alternative

The No Action Alternative would result in no change from baseline conditions. As a result of the No Action Alternative, no changes to the visual quality of any of the housing sites would occur.

#### 4.12.3 Cumulative Impacts

The Proposed Action is one of two other planned projects involving construction on McChord AFB, as identified on Table 2-3. Construction projects at McChord AFB would occur in areas where the visual resources have been modified by development. The Proposed Action, when combined with other actions, would not be expected to cumulatively contribute to impacts on visual resources.

#### 4.12.4 Mitigation

Mitigation measures required for impacts to plans and policies for future conservation at Westcott Hills are addressed in the Land Use subchapter. The Air Force would ensure that the following best management practice is accomplished to ensure visual screening of the new housing on the Westcott Hills parcel along the Lincoln Boulevard:

- The 62d CES Environmental Management Flight would ensure that the Construction Project Quality QAE identifies the proposed limits of construction at the site to retain the existing greenbelt that would screen visibility of the proposed housing units on the 24.91-acre Westcott Hills parcel from Lincoln Boulevard

### 4.13 Environmental Justice

#### 4.13.1 Proposed Action

The American Lake Garden Tract in the City of Lakewood is a low-income community, with approximately 50 percent of persons living below the federally designated poverty level. This community is also approximately 50 percent minority. This community exhibits a higher percentage of low-income households and minority population than its surrounding areas. For this reason, an environmental justice evaluation was performed to determine if the Proposed Action would result in environmental impacts that would be considered disproportionately adverse to this specific community.

The Proposed Action would result in a reduction in the number of housing units on McChord AFB. Due to the nature of the Proposed Action, the key environmental resources that could potentially contribute to localized impacts to the community in the American Lake Garden Tract are air quality, noise and traffic. The analysis has determined that:

- 1       ▪ Air pollutant emissions would be generated by the construction vehicles that traverse through the  
2       American Lake Garden Tract in order to access the Base via the commercial gate. This  
3       community is one of several communities that could be used as an access route to and from  
4       McChord AFB. Vehicular exhaust from the construction vehicles would not result in air pollutant  
5       emissions that would exceed applicable national and Washington state standards. For this  
6       reason, air quality impacts to the American Lake Garden Tract would not be considered  
7       significant.
- 8       ▪ The construction vehicles that would use the roadways in the American Lake Garden Tract  
9       would generate roadway noise. Although noise from these construction vehicles would be  
10      generated, the existing ambient noise level would not be increased nor would noise standards  
11      be exceeded. The additional traffic would not be discernible over existing noise conditions along  
12      the affected roadways. The noise from additional traffic in the community would not result in  
13      speech interference or hearing loss. For this reason, noise impacts to the American Lake  
14      Garden Tract would not be considered significant.
- 15      ▪ The Proposed Action would result in a temporary increase in traffic during the construction  
16      period. Traffic increases related to the construction activities could occur in the American Lake  
17      Garden Tract. Because this community is one of several communities that could be used as an  
18      access route to and from McChord AFB during the construction period, it is not anticipated that  
19      traffic volumes would result in permanent changes to the roadway level of service in this  
20      particular community. For this reason, traffic impacts to the American Lake Garden Tract would  
21      not be considered significant.

22      The analysis performed for this EA determined that implementation of the Proposed Action would not  
23      result in impacts that are considered significant for air quality, noise, or traffic. The Proposed Action  
24      would not cause adverse impacts to human health or the environment of neighboring populations.  
25      Because significant environmental impacts would not result, no disproportionately adverse effects to  
26      minority and low-income populations in the American Lake Garden Tract are anticipated.

#### 27      **4.13.2 No Action Alternative**

28      The No Action Alternative would result in no effects on air quality, noise or traffic in the American Lake  
29      Garden Tract. Disproportionately adverse effects to minority and low-income populations would not result  
30      from the No Action Alternative.

#### 31      **4.13.3 Cumulative Impacts**

32      There are no other actions identified for the American Lake Garden Tract that would be constructed  
33      during the Proposed Action. The Proposed Action, when combined with other planned projects, would  
34      not contribute cumulative impacts to minority and low-income populations in the area.

#### 35      **4.13.4 Mitigation**

36      No significant impacts would be anticipated. Therefore, no mitigation would be required.

### 37      **4.14 Unavoidable Adverse Impacts**

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38      Unavoidable adverse impacts would result from implementation of the Proposed Action.

#### 39      **4.14.1 Air Quality**

40      The emission of air pollutants associated with demolition and renovation is an unavoidable condition, but  
41      is not considered significant and a Clean Air Act General Conformity Determination would not be  
42      required. Upon completion of the Proposed Action, air pollutant emissions from vehicle use would  
43      continue but would decrease due to the reduced number of housing units on McChord AFB. A decrease  
44      in the amount of residential emissions would result. Air pollutant emissions associated with occupancy of  
45      privatized housing would be unavoidable, but would not be considered significant.

#### 46      **4.14.2 Noise**

47      Noise resulting from temporary demolition and construction activities in the housing areas is an  
48      unavoidable condition. Sleep disturbance, annoyance, and speech interference may occur for the

Proposed Action. However, hearing impairment is not expected. Demolition, construction and renovation noise would not be considered a significant impact.

#### **4.14.3 Energy Resources**

The use of nonrenewable resources is an unavoidable occurrence, although not considered significant. The Proposed Action would require use of fossil fuels, a nonrenewable natural resource. Energy supplies, although relatively small, would be committed to the Proposed Action.

#### **4.15 Relationship Between Short-Term Uses and Enhancement of Long-Term Productivity**

The Proposed Action would not result in intensification of land use in the area surrounding the Base. Development of the Proposed Action would represent a loss of open space as a result of conversion of the 24.91-acre Westcott Hills parcel. Other sites are designated for housing, and were not planned for use as open space. Long-term productivity of the site would change as a result of the Proposed Action.

#### **4.16 Irreversible and Irretrievable Commitment of Resources**

The irreversible environmental changes that would result from implementation of the Proposed Action involve consumption of material resources, energy resources, and human resources. Use of the Westcott Hills parcel for development of new housing represents an irreversible commitment of natural resources.

##### **4.16.1 Material Resources**

Building materials (for construction of housing and associated community facilities), concrete and asphalt (for roads), and various material supplies (for infrastructure improvements) would be used for the Proposed Action. Most of these materials are not in short supply, and are readily available from suppliers in the region. Use of these materials for the Proposed Action would not limit other unrelated construction activities.

##### **4.16.2 Energy Resources**

Energy resources such as petroleum-based products (i.e., gasoline and diesel), natural gas, and electricity would be used for the Proposed Action and would be irretrievably lost. Gasoline and diesel would be used for operation of construction vehicles. Gasoline would continue to be used for vehicle operation. Natural gas and electricity would continue to be used in housing units on the Base. To conserve energy, housing renovations and new construction would include energy-efficient principles and appliances. Consumption of these energy resources would not place a significant demand on their supply systems or within the region.

##### **4.16.3 Human Resources**

The use of human resources for construction is considered an irretrievable loss only in that it would preclude the personnel from engaging in other work activities. However, the use of human resources for the Proposed Action represents employment opportunities, and is considered beneficial.

## CHAPTER 5

### SUPPORTING INFORMATION

#### 5.1 List of Preparers

The following persons were responsible for preparation of this Environmental Assessment.

Name	Degree	Resource	Years of Experience
Crisologo, Rosemarie	B.S., Biological Sciences M.S., Environmental Engineering	Environmental Science	25
Gaddi, Elvira	B.S., Chemical Engineering M.S., Chemical Engineering	Environmental Compliance	26
Schnapp, Angela	B.S. Nuclear Engineering M.S. Environmental Engineering	Environmental Engineering	10
Wallin, John	B.A., Biology M.A., Management	Technical Advisor	33
Wooten, R.C., Ph.D.	Ph.D., Ecology and Biology	Technical Manager	35

#### 5.2 Persons and Agencies Consulted

The following persons were consulted during preparation of this Environmental Assessment.

##### **Brooks City-Base, Texas, Headquarters Air Force Center for Environmental Excellence**

Watson, Don T. (HQ AFCEE/HPE)

##### **Scott Air Force Base, Illinois, Headquarters Air Mobility Command**

Fetzer, Mark (HQ AMC/A7PI)

Carson, Chris (HQ AMC/A7HP)

##### **McChord Air Force Base, Washington**

Lovering, Cal (62 CES/CEH)

Grenko, Michael (62 CES/CEV)

Elliott, Valerie (62 CES/CEV)

McCormick, Jim (62 AW/JA)

Gibbens, Joe (62 CES/CEV)

Myers, Bill (62 CES/CEV)

##### **Fort Lewis, Washington**

Boisvert, Robert - Housing and RCI Asset Manager (RCO)

Wind, Robert - Quality Assurance Specialist (RCO)

Ruby, Bret - Cultural Resources Specialist

### 5.3 References

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- The following documents were used during preparation of this Environmental Assessment.
- ACQWEB, 2001. Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics web site.
- AFCEE, 2007. Information from the United States Air Force Housing Privatization Website available at <http://www.afcee.brooks.af.mil/dc/dcp/news/> and AMC West housing privatization information available at <http://www.afcee.brooks.af.mil/dc/dcp/news/projects/details.asp?GroupID=7> Downloaded on 7 February.
- CERL, 1978. United States Department of the Army, Construction Engineering Research Laboratory, *MicroBNOISE, A User's Manual, Technical Report N-86/12*, June.
- Ebasco Environmental, 1990. *McChord Air Force Base. Area D/ALGT Remedial Investigation/Feasibility Study*. January.
- Equity Residential, 2008. Residential Communities Initiative (Assistant Secretary of the Army for Installations & Environment. *McChord Air Force Base Community Development and Management Plan*. (working document) 34 pages.
- FHWA, 2002. FHWA-WA-EIS-02-03-DS. Cross-Base Highway, I-5 to SR-7. Tacoma and Lakewood, Washington. Supplemental Draft Environmental Impact Statement. Submitted pursuant to Section 42 U.S.C. 4332(2)(c) by the U.S. Department of Transportation, Federal Highway Administration and the Washington State Department of Transportation and Pierce County. June.
- Golder Associates, 2008. *McChord Air Force Base. Final Wetland Delineation Report*. Submitted to The Benham Companies, LLC. June 16.
- Grenko, 2003. Personal communication between Michael Grenko, Chief of Environmental Flight (63 CES/CEV), and Rosemarie Crisologo (Parsons), April 10, 2003.
- LRI, 2008. Information on the Land Recovery, Inc. (LRI) Landfill. Available at <http://www.lrandfill.com/landfill.asp>. 6 August.
- USAF, 2008a. *Federal and State Listed Species and Species of Concern on McChord AFB*. Current as of June 2008. Obtained from Valerie R Elliott, Civ (USAF AMC 62 CES/CEV). August 6.
- USAF, 2008b. Cross-sections of Westcott Hills. electronic communication from Michael Grenko, Civ (USAF AMC 62 CES/CEV). August 7.
- Requirements and Market Analysis. Fort Lewis and BRAC Manpower Update 2006 – 2011. McChord Air Force Base, Washington*. Prepared for
- USAF, 2006. *Housing Requirements and Market Analysis. Fort Lewis and BRAC Manpower Update 2006 – 2011. McChord Air Force Base, Washington*. Prepared for Air Force Center for Environmental Excellence (AFCEE), Air Force Housing Division (AF/ILEHD), Air Mobility Command, and McChord Air Force Base. Prepared by Science Applications International Corporation (SAIC). January 26.
- USAF, 2003a. *McChord AFB Integrated Natural Resources Management Plan. 2003 – 2007 A Component Plan of the Base Comprehensive Plan*.
- USAF, 2003b. *McChord AFB Air Emissions Inventory for calendar year 2001, Stationary Sources*, March 2003.
- USAF, 1998. *Cultural Resources Management Plan. McChord Air Force Base, Washington*.
- USAF, 1997. United States Air Force, Air Mobility Command. *Environmental Assessment, Proposed C-17 Beddown, McChord Air Force Base, Washington*. January.
- USAF, 1996. *Defending Biodiversity. Safeguarding America's Natural Heritage at McChord Air Force Base, Washington*. Brochure. 12 pages. April.

- 1 U.S. Army, 2007. *Operational Noise Consultation 52-ON-08JM-07, Onsite Noise Monitoring of Interstate*  
2 *5 at McChord Air Force Base, Washington* 5 November – 11 November 2007. 51 pages. 13  
3 December.
- 4 U.S. Army, 2008. *Fort Lewis Cultural Resources Office Assessment of Project Effects. Project Name:*  
5 *Lease Two Undeveloped Parcels and One Developed Parcel (Historic Row House Complex) at*  
6 *McChord Air Force Base.* 6 pages. 24 July.
- 7 USEPA, 1995. United States Environmental Protection Agency, *Compilation of Air Pollutant Factors,*  
8 *Volume 1: Stationary Point and Area Sources (AP-42)*, 5th edition, United States Environmental  
9 Protection Agency, Ann Arbor, January.
- 10 USEPA, 1988. United States Environmental Protection Agency, *Gap Filling PM<sub>10</sub> Emission Factors for*  
11 *Selected Open Area Dust Sources*, EPA-450/4.88-003 Research Triangle Park, February.
- 12 USEPA, 1985. *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area*  
13 *Sources and Volume 2: Mobile Sources, AP-42, 4th Edition with Supplements*, United States  
14 Environmental Protection Agency, Ann Arbor, Michigan. September.

## 5.4 Distribution of the Draft EA

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16 The Air Force provided a copy of this Draft EA to the following agencies and interested parties

### Federal Agencies

Ken Berg, Manager  
Western Washington Office  
North Pacific Coast Ecoregion  
U.S. Fish and Wildlife Service  
510 Desmond Drive SE, Suite 102  
Lacey, WA 98503  
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NEPA Review Unit  
Office of Ecosystems, Tribal & Public Affairs  
U.S. Environmental Protection Agency, Region 10  
1200 Sixth Ave.  
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Mr. Phil Crawford  
Public Works  
Attn: AFZH-PW Mail Stop: 17  
Fort Lewis, WA 98433  
Mr. Jack Kennedy  
U.S. Army Corps of Engineers  
Seattle District, Regulatory Branch  
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Seattle, WA 98124-2255

### State Agencies

Ms. Barbara Ritchie, SEPA Unit Supervisor  
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Sue Patanude, Regional Director  
Washington Department of Fish and Wildlife, Region 6  
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Washington Department of Natural Resources  
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State Historic Preservation Office  
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Olympia, WA 98504-8343  
Ms. Carol Lee Roalkbam, Program Manager  
Regulatory Compliance  
Washington State Department of Transportation  
Environmental Services Office  
P.O. Box 47331  
Olympia, WA 98504-7331  
Washington Department of Health  
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### ***Regional and Local Agencies***

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Tacoma, WA 98418-6813

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Mr. Andrew E. Neiditz, City Manager  
City of Lakewood  
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Mr. Joe Tyo, Director of Environmental Services  
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10903 Gravelly Lake Drive SW  
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### ***Native American Tribal Governments***

Nisqually Indian Tribe  
4820 She-Nah-Num Drive SE  
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Puyallup Indian Tribe  
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Tacoma, WA 98404-4996

### ***County Commissioner***

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City-County Building  
930 Tacoma Ave., South  
Tacoma, WA 98402-2102

### ***Mayor***

Mayor, City of Lakewood  
Gravelly Lake Dr. SW, Ste. 206  
Lakewood, WA 98499-5013

### ***Libraries***

Pierce County Library, Lakewood Branch  
6300 Wildaire Road SW  
Lakewood, WA 98499

Pierce County Library  
Parkland-Spanaway Branch  
13718 Pacific Avenue South  
Tacoma, WA 98444

Tillicum Branch Library  
14916 Washington Ave. SW  
Lakewood, WA 98498

Base Library  
851 Lincoln Blvd., Bldg 851  
McChord AFB, WA 98438

### ***Organizations***

Ms. Linda Smith, Executive Director  
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P.O. Box 98690  
Tacoma, WA 98498-0690  
Tacoma-Pierce County Chamber of Commerce  
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Tillicum/Woodbrook Neighborhood Association  
14506 Portland Avenue SW  
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Mick Frame  
Springbrook Neighborhood Association  
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### ***News Media***

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1950 South State Street  
Tacoma, WA 98405

## APPENDIX A

### AIR FORCE FORM 813

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS		Report Control Symbol RCS:			
INSTRUCTIONS <i>Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).</i>					
<b>SECTION I - PROPONENT INFORMATION</b>					
1. TO (Environmental Planning Function)		2. FROM (Proponent organization and functional address symbol) 62 CES/CEV		2a. TELEPHONE NO. (253) 982-3913	
3. TITLE OF PROPOSED ACTION Military Housing Privatization Initiative at McChord Air Force Base, Washington					
4. PURPOSE AND NEED FOR ACTION ( <i>Identify decision to be made and need date</i> ) The action is needed to provide affordable, quality private housing for service members and their families stationed at McChord AFB and Fort Lewis. Housing must be upgraded to meet current life safety codes and to provide an adequate living environment comparable to the off-base community.					
5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (DOPAA) ( <i>Provide sufficient details for evaluation of the total action.</i> ) The Air Force proposes to privatize 978 military family housing units on McChord AFB for integration into the adjacent Fort Lewis privatized residential community. The Proposed Action would entail demolition of 590 units, renovation of 268 units, and construction of 250 units on McChord AFB. An additional 90 units would be conveyed in an "as is" condition. Approximately 353 acres of land containing existing housing, undeveloped land and the Carter Lake recreational area would be transferred. The off-Base sewage lift station at 146 <sup>th</sup> and Spring streets, and the off-Base storm water drainage easement, would also be conveyed and privatized. The total end state would be 608 units at the completion of the development period.					
6. PROPONENT APPROVAL ( <i>Name &amp; Grade</i> )		6a. SIGNATURE		6b. DATE	
SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY ( <i>Check appropriate box and describe potential environmental effects including cumulative effect.</i> ) (+ = positive effect; 0 = no effect; - = adverse effect; U = unknown effect)				+	0
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE ( <i>Noise, accident potential, encroachment, etc.</i> )				X	
8. AIR QUALITY ( <i>Emissions, attainment status, state implementation plan, etc.</i> )					X
9. WATER RESOURCES ( <i>Quality, quantity, source, etc.</i> )					X
10. SAFETY AND OCCUPATIONAL HEALTH ( <i>Asbestos/radiation/chemical exposure, explosives safety quantity-distance, etc.</i> )					X
11. HAZARDOUS MATERIALS/WASTE ( <i>Use/storage/generation, solid waste, etc.</i> )					X
12. BIOLOGICAL RESOURCES ( <i>Wetlands/floodplains, flora, fauna, etc.</i> )					X
13. CULTURAL RESOURCES ( <i>Native American burial sites, archaeological, historical, etc.</i> )					X
14. GEOLOGY AND SOILS ( <i>Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.</i> )					X
15. SOCIOECONOMICS ( <i>Employment/population projections, school and local fiscal impacts, etc.</i> )					X
16. OTHER ( <i>Potential Impacts not addressed above.</i> )					X
<b>SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION</b>					
17.		PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # _____; OR			
<input checked="" type="checkbox"/>		PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.			
18. REMARKS					
19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION ( <i>Name &amp; Grade</i> )		19a. SIGNATURE		19b. DATE	

AF FORM 813, AUG 93 (EF-V1)

THIS FORM CONSOLIDATES AF FORMS 913 AND 914.  
PAGE PREVIOUS EDITIONS OF BOTH FORMS ARE OBSOLETE.

PAGE 1 OF 1

**APPENDIX B**  
**INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR**  
**ENVIRONMENTAL PLANNING CORRESPONDENCE**

(to be provided)